

Aug. 17, 1943.

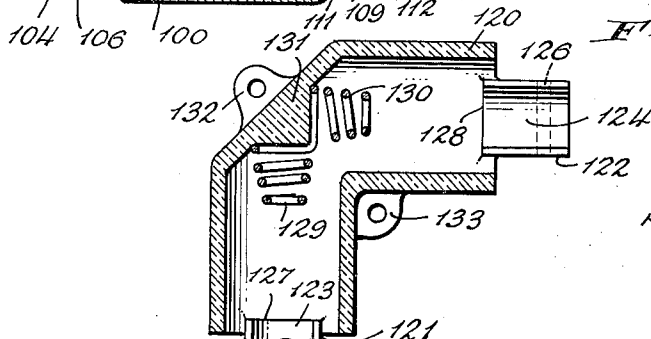
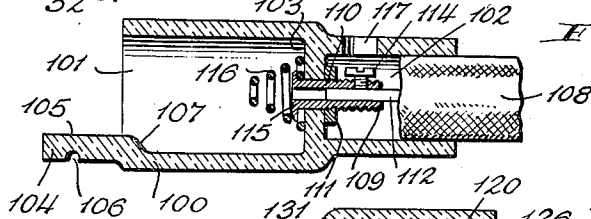
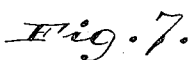
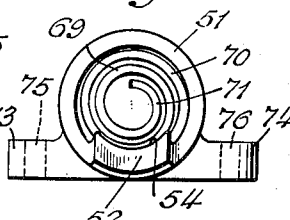
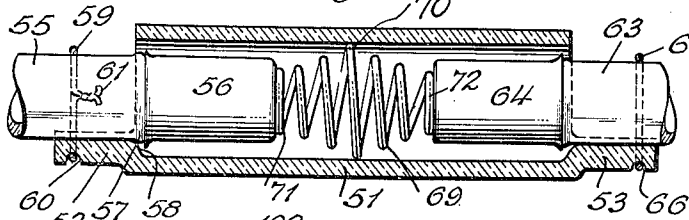
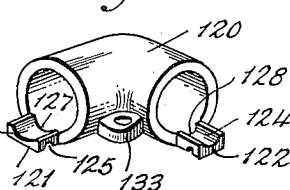
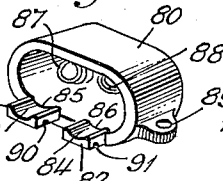
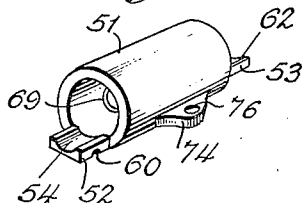
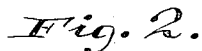
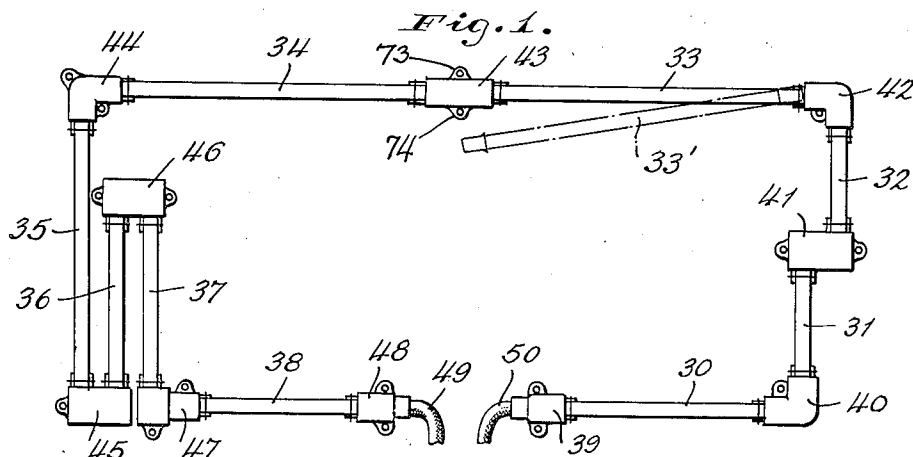
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2,326,792

MOUNTING FOR NEON TUBES AND THE LIKE

Filed Dec. 27, 1939

4 Sheets-Sheet 1



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2,326,792

MOUNTING FOR NEON TUBES AND THE LIKE

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4 Sheets-Sheet 2

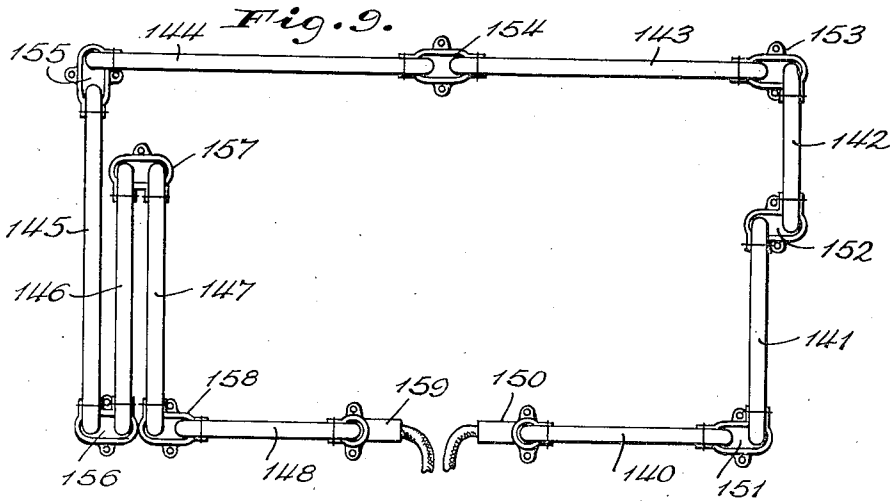


Fig. 10.

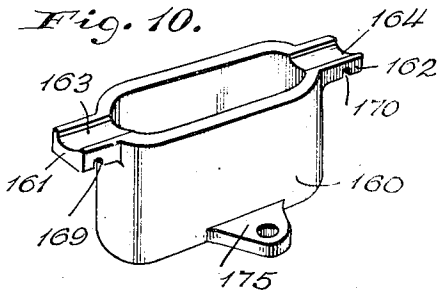
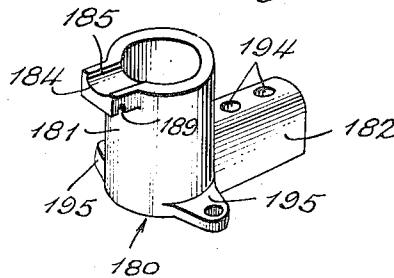


Fig. 13.



Aug. 17, 1943.

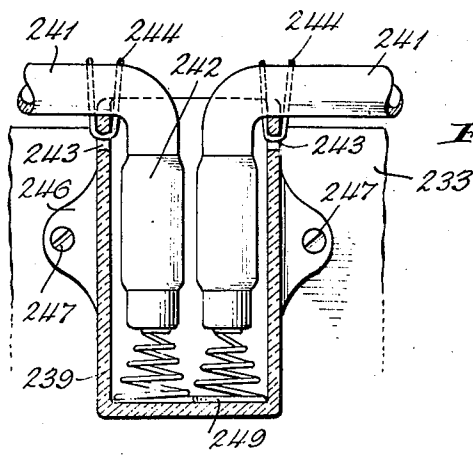
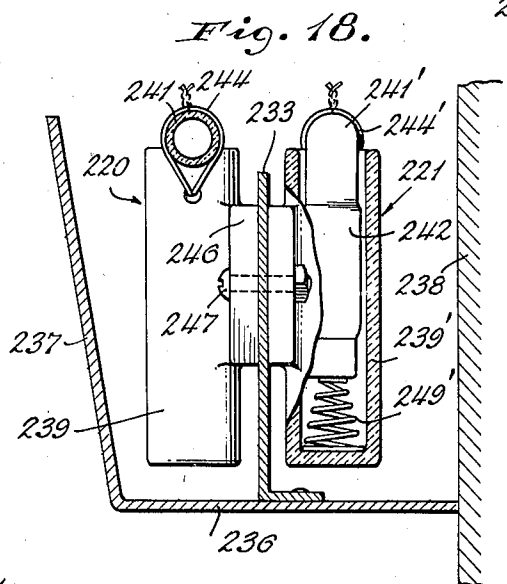
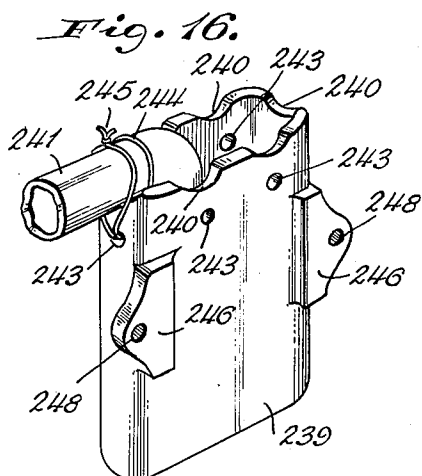
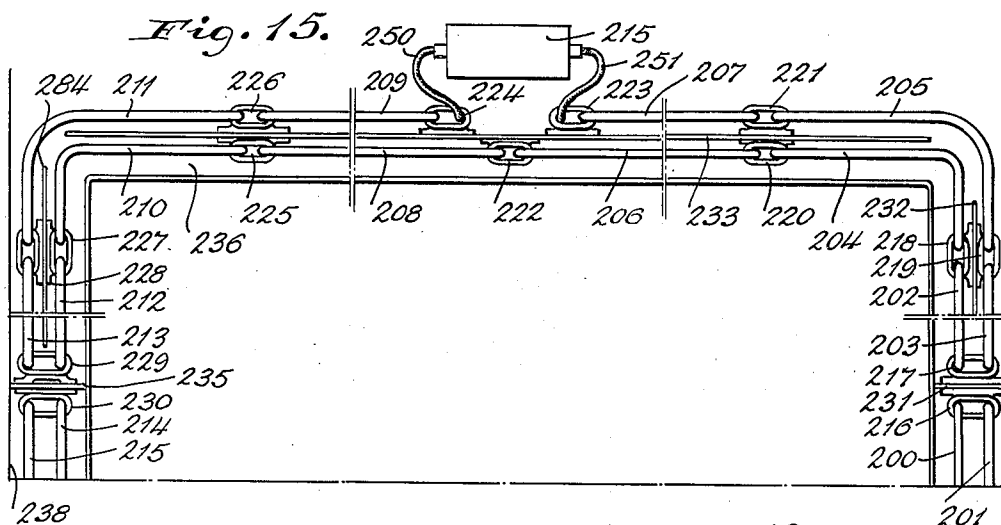
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MOUNTING FOR NEON TUBES AND THE LIKE

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4 Sheets-Sheet 3



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MOUNTING FOR NEON TUBES AND THE LIKE

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4 Sheets-Sheet 4

Fig. 19.

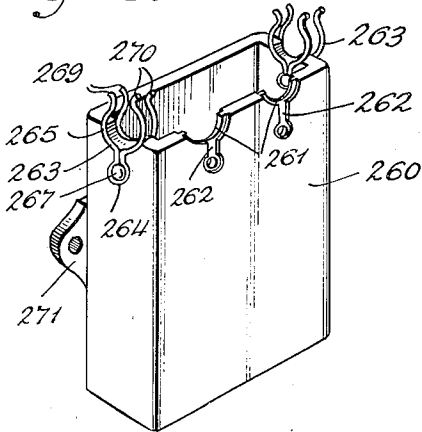
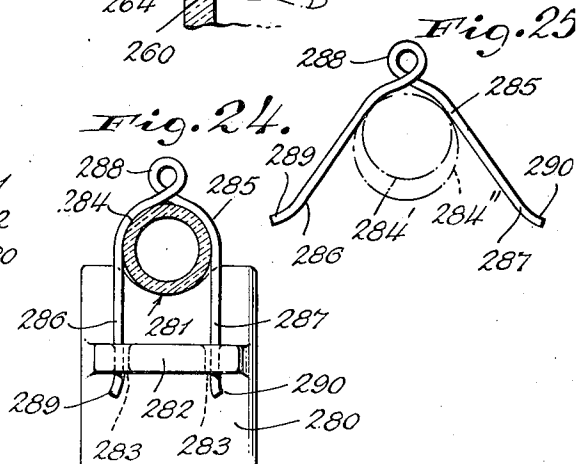
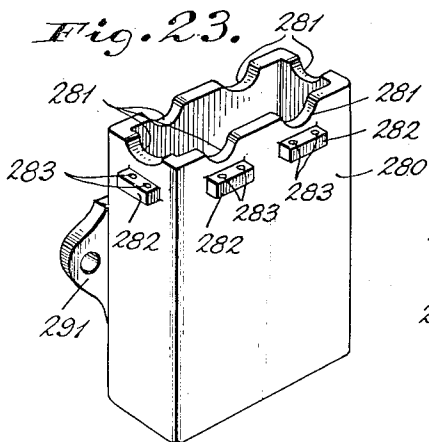
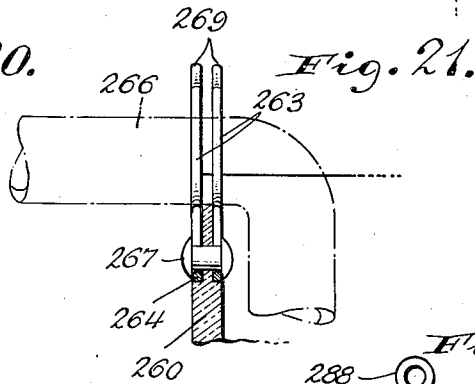
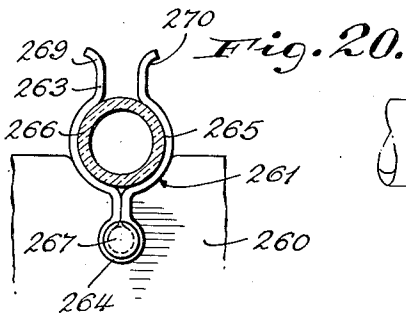
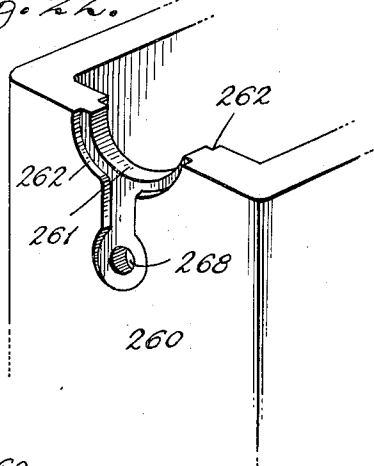


Fig. 22.



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UNITED STATES PATENT OFFICE

2,326,792

MOUNTING FOR NEON TUBES AND THE
LIKE

Samuel C. Miller, New York, N. Y.

Application December 27, 1939, Serial No. 311,078

3 Claims. (Cl. 176—32)

This invention relates generally to luminous gaseous discharge tubes, and more particularly it relates to a mounting for such tubes. More specifically it relates to such tubes having cup-shaped electrodes of the type described in my Patents #2,271,657 and #2,271,658 of Feb. 3, 1942, and to means for receiving electrodes of this type and thereby to mount the tube such as on a display panel or the like and to establish electrical connection of the electrode thereof, such as to a source of current or to the electrode of another tube.

For the purpose of simplifying the terminology the expression "neon tube" has been used throughout the specification as equivalent to "luminous gaseous discharge tube," and it is therefore to be understood that when I use the term "neon tube" I do not intend to restrict myself to luminous gaseous discharge tubes, that is to tubes in which the gaseous conducting medium is neon, but that this term is intended to include tubes containing gases other than neon and also gaseous conducting media in combination with other substances, such as mercury and its vapor.

Among the objects of my invention is the provision of means for mounting neon tubes that is effective, simple and economical, and that simplifies the operation of mounting and installing neon tubes.

It is further among the objects of my invention to provide a simple, effective and inexpensive housing adapted to receive the electrodes of neon tubes, where these are of the cup-shaped type described in my aforementioned copending applications and effectively to establish electrical connection thereof such as to a source of current or the electrodes of other neon tubes.

Among the objects of my invention are further the provision in a housing for neon tubes of an improved contact arrangement for introducing electric current into the tube, and the provision of an improved arrangement whereby a neon tube will be securely held in the housing.

To attain these objects and such further objects as may appear or be hereinafter pointed out, I make reference to the accompanying drawings, forming a part hereof, in which:

Figure 1 is a face view of a neon tube installation in which one type of my improved housing is used;

Figures 2, 3 and 4 are respectively perspective views of different forms of neon tube terminal housings used in the installation of Figure 1;

Figures 5 and 6 are respectively longitudinal sectional and end views of the housing of Figure

2, and the former showing neon tubes in place in the housing;

Figure 7 is a longitudinal sectional view through one of the end housings of the installation of Figure 1, through which electric current is introduced into the tube and showing an electric conductor in place in the housing;

Figure 8 is a longitudinal sectional view through the housing of Figure 4;

Figure 9 is a face view of a neon tube installation using another type of housing;

Figure 10 is a perspective view of one of the forms of housing used in the installation of Figure 9;

Figure 11 is a longitudinal sectional view taken through the housing of Figure 10 and showing a neon tube in place in the housing;

Figure 12 is a plan view of the housing of Figure 10;

Figure 13 is a perspective view of an end housing of the installation of Figure 9;

Figure 14 is a longitudinal sectional view through the housing of Figure 13 showing an electric conductor in place in the housing;

Figure 15 is a fragmentary plan view of a neon tube installation using still another type of housing;

Figure 16 is a perspective view of one form of housing used in the installation of Figure 15; and showing a neon tube in place in the housing;

Figure 17 is a longitudinal sectional view through the housing of Figure 16 showing two neon tubes in place therein;

Figure 18 is a transverse sectional view through a pair of housings such as shown in Figure 16, mounted on a central support positioned in a trough-like reflecting shield, as in the installation of Figure 15, and showing neon tubes in place therein;

Figure 19 is a perspective view of a housing adapted for use alternatively to that of Figure 16;

Figure 20 is a fragmentary end view on a larger scale of the housing of Figure 19;

Figure 21 is a fragmentary longitudinal sectional view on a larger scale of the housing of Figure 19;

Figure 22 is a fragmentary perspective view on a large scale of the body of the housing of Figure 19;

Figure 23 is a perspective view of another housing adapted for use alternatively to the housing of Fig. 16, the body of the housing only being shown;

Figure 24 is a fragmentary end view of the

housing of Figure 23, showing a tube in place thereon;

Figure 25 is a view of the means for fastening the tubes to the housing proper, and illustrating its adaptability to various sizes of tubes.

In Figure 1 of the drawings I have shown a neon tube installation comprising the neon tubes 30, 31, 32, 33, 34, 35, 36, 37 and 38 having their ends connected to each other or to electric supply wires by housings 39, 40, 41, 42, 43, 44, 45, 46, 47 and 48. All of these housings are adapted for use with straight ended neon tubes and they support these in relatively close adjacency to the display panel or other supporting structure. It will be observed that, while these housings are all based on the same general principles of construction, that they are of various forms corresponding to their particular functions. For example, the housing 43 is adapted for the connection of two neon tubes (33 and 34) in end to end relation, the housings 45 and 46 are adapted for connecting the ends of two tubes running in parallel laterally spaced relation, the housing 41 is adapted to connect two laterally spaced tubes running in opposite directions, the housings 40, 42 and 44 and 47 are of elbow form and are adapted to connect two tubes running at right angles to each other, while the housings 39 and 48 are adapted to connect a tube with the terminals 49 and 50 of an electrical power source.

The housings shown in Figure 1 will also be found to differ from each other in the number and arrangements of the brackets by which they are secured to a display board or to other base, and it will be understood that this feature of my invention may be varied as to number and location of the brackets, to suit particular requirements.

Several of the housings shown in Figure 1 will now be described in detail with the aid of other figures of the drawings.

In Figures 2, 5 and 6 I have illustrated the construction of a housing of the type shown at 43 in Figure 1. The body 51 of this housing, as shown in the drawings, will be seen to be in the form of an elongated hollow tubular member of electrically insulating material, provided with an extension 52 at one end, and an extension 53 at its other end. The extension 52 is shown dished or hollowed as at 54 so as to provide a seat for the glass tube portion 55 of a neon tube which carries at its end a cup-shaped terminal 56, of the type described in my aforementioned Patents #2,271,657 and #2,271,658, and it will be observed that a shoulder 57 is shown on the tube 55. The seat 54 is offset laterally from the inner wall of the body 51 so that it forms a shoulder 58, which will coast with the shoulder 57 of the tube 55, to assist in preventing movement of the tube 55 to the left, as shown in Figure 5, as long as the tube 55 is held in the seat 54. The offset 54 also serves to coaxially center the electrode 56 in respect of the insulator 51.

Means for so holding the tube 55 in its seat are shown in the form of a wire 59 seating in a groove or channel 60 of the extension 52 and having its ends twisted together, as shown at 61 so as to form a loop encompassing the tube 55 and holding it in the seat 54.

The opposite end of the housing is similar to that just described and its extension 53 is provided with a concaved seat 62 in which is adapted to coaxially seat the glass tube portion 63 carrying the cup-shaped terminal 64. The tube 63 is held in its seat by a loop of wire 65 seating

in the groove 66 in the extension 53. Complementary shoulders 67 and 68, respectively, on the tube 63 and on the extension 53 prevent movement of the tube 63 to the right, as clearly appears from Figure 5, when the tube is held in its seat.

Current is conducted from the terminal 56 of one neon tube to the terminal 64 of the other neon tube by a resilient conducting member 69, shown as in the form of a spiral compression spring having a central turn or convolution 70 of a diameter to fit the bore of the body 51 so as to minimize lateral movement of the spring and tapered off at both ends so that its end convolutions 71 and 72 are of a diameter adapting them to seat on and engage the ends of the terminals 55 and 64, which it will be observed, are of a diameter less than the diameter of the bore of body 51. The turn 70 preferably has a friction fit relatively to the bore of the housing 51, but is sufficiently compressible to permit its removal when desired.

Fastening means for securing the housing to a display board or panel have been shown in the form of a pair of brackets or lugs 73 and 74 disposed laterally of the body 51 and provided with holes 75 and 76 for the reception of suitable fastening members, such as screws, bolts or nails.

In Figure 3 is shown in perspective a housing such as the housings 45 and 46 of Figure 1. It may be described as comprising a hollow body portion 80 of electrically insulating material adapted to receive within the hollow thereof the terminals of a pair of neon tubes, arranged side by side. Protruding from the open end of the body portion 80 are shown a pair of extensions 81 and 82 provided with dished seats 83 and 84 respectively, each adapted to seat a neon tube and provided with shoulders 85 and 86 at their inner ends.

Seated on the closed end of the body 80 are shown a pair of electrically conducting spiral springs 87 and 88 each adapted to engage the terminal of a neon tube seated in the housing, and the springs being electrically connected to each other, as by being made integral with each other (not shown). Grooves or channels 89 and 90 are provided in the extensions 81 and 82 for the reception of means for holding the neon tubes in place on the seats 83 and 84 in the manner described for the other forms. Means such as a lug or lugs 91 are provided for securing the housing to a base, such as a display board.

In Figures 4 and 8 is illustrated a type of housing such as those shown at 40, 42 and 44 of Figure 1, and which may be referred to as the "elbow" type. A hollow elbow-shaped body portion 120 of electrically insulating material is provided at its open ends with extensions 121 and 122 having seats 123 and 124 thereon for the seating of neon tubes and also having recesses 125 and 126 thereon for the reception of means for holding the tubes on the seats, and further provided with shoulders 127 and 128 to generally conform to the complementary shoulders on the neon tubes to be inserted into the housing, and maintain the electrodes axially spaced in insulated relationship to the housing.

The resilient conducting means in this form consists of a pair of helical springs 129 and 130 connected together and angularly disposed relatively to each other so that one extends along the axis of each of the legs of the housing 120. The base of each spring seats on one

face of a boss 131 on the inner wall of the housing provided with angularly disposed faces serving as seats for the springs. It will be observed that the springs 129 and 130 are shown as tapering in form, which has advantages for certain purposes. It will however be understood that other forms, such as a cylindrical form, may also be found desirable or even preferable for certain purposes.

Brackets 132 and 133 are also shown, for securing the housing to a base.

In Figure 7 is illustrated a housing corresponding to the form shown at 39 and 48 in Figure 1, in which connection is effected between a neon tube and an electrical conductor. In this form the body 100 comprises two aligned socket portions 101 and 102 separated by a partition 103. The portion 101 is adapted to receive the end of a neon tube and is similar in construction to the preceding forms, being provided with an extension 104 showing a seat 105 for a neon tube thereon and also having thereon a groove 106 to receive the fastening means and a shoulder 107 corresponding to the shoulder 58 of Figure 5.

The portion 102 is adapted to receive the end of an electrical conductor 108 therein. In order to effect the connection between this conductor and the neon tube I have shown a connector 109 mounted on the partition 103. This connector is provided with a stem portion 110 passing through an opening in the partition, and is clamped in place on the partition by a nut 111 in threaded engagement with the stem portion 110. The metallic conducting core 112 of the conductor 108 is held in place within the bore 113 of the connector by a set screw 114. Clamped underneath the head 115 of the stem portion 110 of the connector is a spiral spring 116 of electrically conducting material, shown by way of example as of tapered configuration whereby a broad base assuring stability is provided.

An opening 117 in the side of the portion 82 affords access to the set screw 114 by means of a suitable tool, such as a screw driver.

One of the great advantages afforded in the installation of tubes in housings of my improved construction is illustrated in Figure 1, in which the neon tube 33 is shown in dot-and-dash lines in a tilted or angled position 33' which it may assume during the process of mounting the tube in the housing 42. Such angling is made possible by the relatively reduced diameter of the neon tube as compared to the bore of the housing (see Figure 5) and makes unnecessary any great accuracy of alignment besides facilitating the insertion of the tube end into the housing.

It will be observed that all of the housings so far described are adapted to hold the neon tubes closely adjacent to the display board or panel on which they are mounted. In the installation shown in Figure 9 the housings are designed for the reception of neon tubes having their terminals disposed at an angle to the body of each tube, and held by the housing in a raised position above the display panel.

In Figure 9 I have shown an installation of such tubes, numbered respectively 140, 141, 142, 143, 144, 145, 146, 147 and 148 and various forms of housing have been shown, one form, shown at 150 and 159 being adapted for the reception of one neon tube terminal and an electric conductor end, while, the forms shown at 151, 153, 155 and 158 are adapted for a pair of tubes extending at right angles to each other (the

housing 151 differing from the others of this group by being what may be termed a "left-handed" arrangement, whereas the others are what may be termed a "right-handed" arrangement), the form shown at 152 being adapted for a pair of laterally spaced tubes extending in opposite directions, the form shown at 154 being adapted for a pair of tubes arranged in end to end relation, and the form shown at 156 and 157 being adapted for a pair of tubes extending in the same direction in spaced parallel relation.

In order to make clear the general principles of construction characterizing all of these forms, two of them will be described in detail.

One of these forms, 154, is shown in Figures 10, 11 and 12, and comprises a hollow body 160 open at the top and closed at the bottom. Extending outwardly from the upper rim of the body 160 are extensions 161 and 162, each provided with a seat (163 and 164 respectively) on which is adapted to seat the glass portion 165 of a neon tube, the terminal 166 of which is shown as angularly disposed to the main body of the glass tube 165 and as seated within the body 160. Fastening means 167 in the form of a loop of wire or the like having its ends twisted together as at 168 and seated in the groove 169 of extension 161 are also provided in this form. It will be understood that a second tube may be similarly mounted in the other side of the housing, this tube seating itself in the seat 164 of the extension 162. A groove 170 is provided on the extension 162 for the reception of the fastening means similar to that shown at 167.

In order to establish contact between the two tubes I have shown a double or twin spiral spring 171 having its coils 172 and 173 arranged in parallel relation and seated on the bottom wall 174 of the housing 160. These springs are of tapered construction and the broad bases thereby provided assure steadiness and prevent lateral displacement by being made of a diameter that equals the width of the hollow space in the body 160. The dimensions of the spring may further be made such that the spring 171 is held in the body 160 by friction but may be compressed sufficiently to permit removal.

A pair of lugs 175 and 176 are carried by the body 160 and provide means for fastening it to a backing.

It will be observed that the shoulders 57 and 58 of the form of Figure 5 are not needed for this form because the angular bend of the tube and the wall of the housing prevent movement of the tube out of the housing in an axial direction.

A second one of the forms of Figure 9, namely that numbered 159 is shown in detail in Figures 13 and 14. The body 180 thereof comprises two tubular portions 181 and 182 angularly disposed relatively to each other, and one, 181, adapted to receive the terminal of a neon tube, while the other, 182, is adapted to receive the end of a wire or cable 183.

The portion 181 is provided with an extension 184 having a seat 185 for receiving thereon the side wall of a neon tube, the angularly disposed terminal of which is positioned within the portion 181 and engaged by the end of a coil spring 187 seated on the bottom wall 188 of the body 181. A recess or channel 189 is provided in the extension 184, for the reception of fastening means, which may be similar to those described in connection with the preceding forms, for securing the neon tube to the housing.

The spring 187, which is shown as of tapered

conformation, has an extension 180 thereon extending into the portion 182 and adapted for connection to a connector 191 which is also connected to the end 192 of the conducting core 192 of the wire or cable 183. For convenience in manipulating the set screws 193 of the connector 191 which hold the end 192 in place, the portion 182 may be provided with openings 194 through which a screw driver or other suitable tool may be inserted.

At the base of the portion 181 are shown a pair of lugs 195, serving for the mounting of the housing on a suitable backing.

In Figure 15 I have shown what may be referred to as an indirect lighting neon tube installation, that is, one in which the neon tubes are not visible, but their direct light is intercepted by a shield and is directed toward the walls and the ceiling by which it is diffused and reflected before it reaches an observer. Suitable housings are shown for receiving the terminals of the neon tubes and effecting their proper connection, and these are of a type resembling those shown in Figures 9 to 12 inclusive in that they are adapted for use with neon tubes having their terminals bent angularly in relation to their main body portion, but they differ therefrom in being arranged for mounting on laterally positioned panels or brackets instead of on panels or backings below their bases. They further differ from the forms heretofore described in the manner of fastening the neon tubes in place in the housings, as will be fully explained hereinafter. It may further be observed that they are adapted for use in other installations than that of Figure 15. For example they might be used with tubes having bent terminals, where it is desired to mount them closely adjacent to a panel, as in Figure 1.

The fragmentary neon tube installation of Figure 15 comprises tubes 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214 and 215, arranged in parallel rows, and the corner tubes 204, 205, 210 and 211 being angled. The tubes are connected to each other and to the transformer 215, which serves to energize the tubes, by housings 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229 and 230. These housings are mounted on both sides of vertical plates or brackets 231, 232, 233, 234 and 235 which are carried in a reflecting trough having bottom walls 236 and substantially vertical walls 237 (see Figs. 15 and 18) and which is mounted on the walls 238 of a room or other structure, and serve to shield the installation from the view of an observer and to reflect the light against the upper parts of the walls 238 and the ceiling, where the installation is mounted below the ceiling.

The principles of construction of the housings of the installation of Figure 15 will be understood from a description of the housings 220 and 221 which are illustrated in greater detail in Figures 16, 17 and 18, the first two figures showing the housing 220, while Figure 18 is illustrative of the mounting of two housings 220 and 221 on a single bracket.

Referring now to Figures 16 and 17, the housing 220 will be seen to comprise a hollow body 239 open at the top and having a number of concave seats 240 formed in its upper rim, each adapted for the seating thereon of a glass neon tube 241, the angularly bent terminal portion 242 of which extends into the body 239. The body has sufficient capacity to receive the ter-

minal portions of a pair of neon tubes, and it will be observed that due to the number and arrangement of the seats 240 the neon tubes are adapted to assume various positional relations to each other and to the housing. For example, in Figure 15, the tubes are shown mounted in end to end relation and in parallel spaced relation. However, all the relative positions shown in Figure 1 such as rectangular bends, are also attainable with the single form of housing shown in Figure 16, whereas in Fig. 1 several forms are required.

The body 239 is further shown as of sufficient capacity to accommodate neon tube electrodes of the type shown in my aforementioned copending applications Serial Nos. 190,230 and 243,303. In the wall of the body beneath each seat 240 is an opening 243 through which may be passed a flexible member, such as a wire 244 by means of which a neon tube may be held fast within the seat. For this purpose the wire 244 is shown looped about the tube 241 in any suitable or preferred manner.

In Figure 16 the wire 244 is doubled over the tube, and its free ends are then brought through an opening 243, brought up on opposite sides of the tube and then twisted together, as at 245, to form a second loop.

Lugs 246 are provided at one side of the body 239 by means of which it may be fastened to a bracket 233, as for example by bolts 247 passing through openings 248 in the lugs and through complementary openings in the brackets 233.

In Figure 18 a single bolt 247 is shown passing through the opposed lugs 246 of a pair of housings, namely 220 and 221.

A double spiral spring 249, similar to the spring 171 of Figures 11 and 12 serves to effect electrical connection between a pair of neon tubes. For this purpose its base coils may have a friction fit with the bottom of the body 239, as already described in connection with the spring 171.

The housing 221 shown in Figure 18 is identical with the housing 220 also shown in said figure. For that reason its parts, as shown in Figure 18 have been similarly numbered, with the numerals primed.

It may again be observed that the seats 240 of this type of housing are so arranged as to adapt it for use in connecting tubes in end-to-end, parallel or angular relationship, which of course is of great advantage in reducing the number of items that a dealer or manufacturer must stock.

The housings 223 and 224 of Figure 15 serve respectively to connect the electric wires 250 and 251 to the neon tubes 207 and 209. They are similar to the housings 220 just described, but with modifications. Without going into the details of the modification in the construction of the housing 220, necessary to effect such connection, it may be stated that the twin spiral spring 249 may be made with only one spiral spring, and instead of the second spiral spring a connector like the connector 191 of Figure 14 may be used for attaching the electric wire to the spring.

The housing shown in Figures 19, 20, 21 and 22 may be used in the installation of Figure 15 alternatively with the housings there shown, such as the housings 220 and 221 just described. It differs from the latter mainly in having preformed means for securing the neon tube to the body of the housing which is carried by the lat-

ter, instead of being separate therefrom and unformed prior to the mounting of the tube, as in the forms hereinabove described.

The body of the housing is shown at 260, and it will be observed that it is hollow and open at the top. Its upper rim is provided with concave seats 261, these being shown at the ends and at one side; obviously, however, they might also be provided on the remaining side if desired. Positioned within suitably contoured recesses 262 adjacent each end seat 261 are spring clips 263. These are conveniently formed with a loop 264 at their bight portion, for attaching purposes, as will be explained, and with an open loop portion 265 adapted to receive a neon tube 266 and to grip the same. A pair of clips 263 are shown associated with each end seat 261 and these are secured to opposite sides of the wall of the body 260 in any suitable or preferred manner, as by rivets 267 passing through openings 268 in the walls of the body and headed over the loops 264. It will be understood that in order to insert a tube, such as 266, the same is forced between the end portions 269 and 270 of the clips 263, against the resilient resistance of the latter and is held thereby.

The resulting construction permits ready insertion or removal of the tubes 266 without altering the housing in any way.

Obviously the clips 263 themselves may be made removable, as for example by using bolts instead of the rivets 267.

While clips 263 have been shown only on the ends of the body 260, it will be understood that they may be and are intended to be used, where required or desired, on the sides as well. It is further to be noted that the fastening 244 of the preceding embodiment may be used instead of the clips 263 where the latter are not available, the construction of the body 260 being adapted therefor. Lugs 271 are provided on the body 260 for attachment purposes.

A second alternative form for use with the installation of Figure 15 is shown in Figures 23, 24 and 25.

In this form, the hollow body portion 280, similar to the body 260, is provided with dished tube-receiving seats 281 along its rim. Brackets 282, projecting outwardly from the body 280, are positioned one below each seat 281, and each bracket has two spaced holes 283 therein. A neon tube 284 is adapted to seat on a seat 281 and may be held thereon by a resilient clip 285, having two legs 286 and 287, adapted for insertion into the holes 283, and provided in the illustrated form with a looped bight portion.

In order to increase the holding power of the clips and lessen the chances of their accidental disengagement, the ends 289 and 290 of the legs 286 and 287 may be bent laterally outward so as to produce a shoulder effect that will increase the resistance to withdrawal of the legs from the holes.

In Figure 25 I have illustrated the adaptability of this construction for use with neon tubes of different diameters which are indicated by the dot and dash circles 284' and 284''. Obviously, the clip 285 is adaptable, with suitable manipulation, to clamp either of them in place.

The body 280 is also provided with suitable attaching lugs 291.

It will be observed that common to the various embodiments described and illustrated in Figures 1 to 24, there is provided in an insulating housing for the purposes described, a seat for

locating the neon tube, avoiding the need for the employment of the usual elevation posts for such illuminants, to bind and to mount the same to some frame, so that the housing not only displaces these usual contrivances, but more effectively gains compactness and eliminates light obscurations and minimizes interference with the reflective surface in association with which the neon tubes are mounted.

It will thus be observed that I have provided a housing adapted for use with neon tubes having electrodes such as described in my aforementioned copending applications Serial No. 190,230 and Serial No. 243,308 and that is simple, effective and economical. While these improved housings are particularly suitable for use with neon tubes having electrodes of the aforementioned type, it is to be understood that they may be used with neon tubes having electrodes of other types, and that my invention contemplates such use.

My invention further contemplates the conjoint use of the various features of my invention in relations other than the identical relations herein disclosed, and that I do not restrict myself to such disclosed combinations.

While I have herein shown and described several illustrative embodiments of my invention and the manner of their use, it is to be understood that my invention may be embodied in many other forms, as will be obvious to those skilled in the art, without departing from the spirit thereof, and that the disclosure herein is by way of illustration merely and is not to be interpreted in a limiting sense, and that I do not limit myself other than as called for by the language of the appended claims.

Having thus described my invention and illustrated its use, what I claim is new and desire to secure by Letters Patent is:

1. In a housing for receiving the terminals of a pair of neon tubes in end-to-end relation, said tubes each being provided with a shoulder adjacent each terminal thereof, a tubular body portion having a bore exceeding in diameter that of the neon tube terminals to be inserted therein, a seat for a side wall portion of the neon tube provided with a laterally offset shoulder at each end of said body portion arranged axially to align said tube and the bore of said housing, said shoulder being adapted to engage said shoulder on one of said neon tubes when the said tube is positioned in said seat, means for holding a tube in said seat, and means for electrically connecting said tubes, said means being resilient and adapted to urge the tubes apart and to urge the shoulders on said tubes against the shoulders on said body.

2. A neon tube terminal housing comprising a hollow body of insulating material having an opening at one side thereof adapted to receive therethrough the electrode end portion of a neon tube in substantially concentric position spaced from the side walls of said hollow body, said tube having an abutment thereon, a seat on said body spaced and extended away from the portion arranged to receive the electrode end, said seat being adapted to receive thereon a side wall portion of the said neon tube, means on said body adapted for the attachment of an arrangement for holding said tube wall portion in place on said seat, and an abutment on said housing complementary to the abutment on said tube and adapted to prevent withdrawal of the tube from the housing in a direction axially of said tube.

3. A housing adapted to receive the electrode of a neon tube having cup-shaped electrodes, said housing comprising a hollow body of insulating material open at one side thereof and adapted to receive therethrough and within the hollow thereof the electrode end portion of a neon tube in substantially concentric position spaced from the side walls of said hollow body, a seat on said

body, spaced and extended away from the portion arranged to receive the electrode end, for a side wall portion of said neon tube, means anchored on the body for holding said tube wall portion on the seat, and electrically conducting resilient means positioned between said electrode and said body and pressing against the electrode.

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