Aug. 30, 1960 L. G. STAHLHUT 2,951,148

MOUNTING FIXTURE FOR TUBULAR LAMP SOCKETS

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FIG. 1.

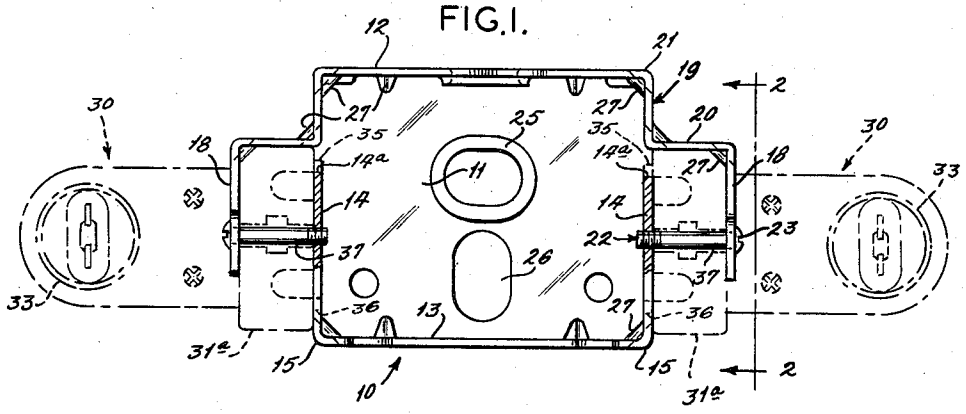


FIG. 2.

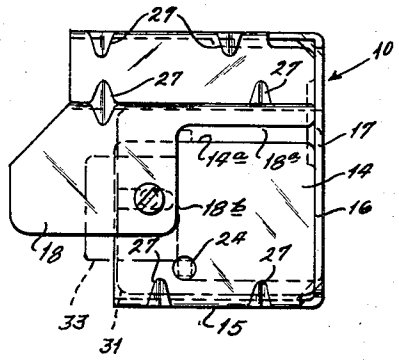
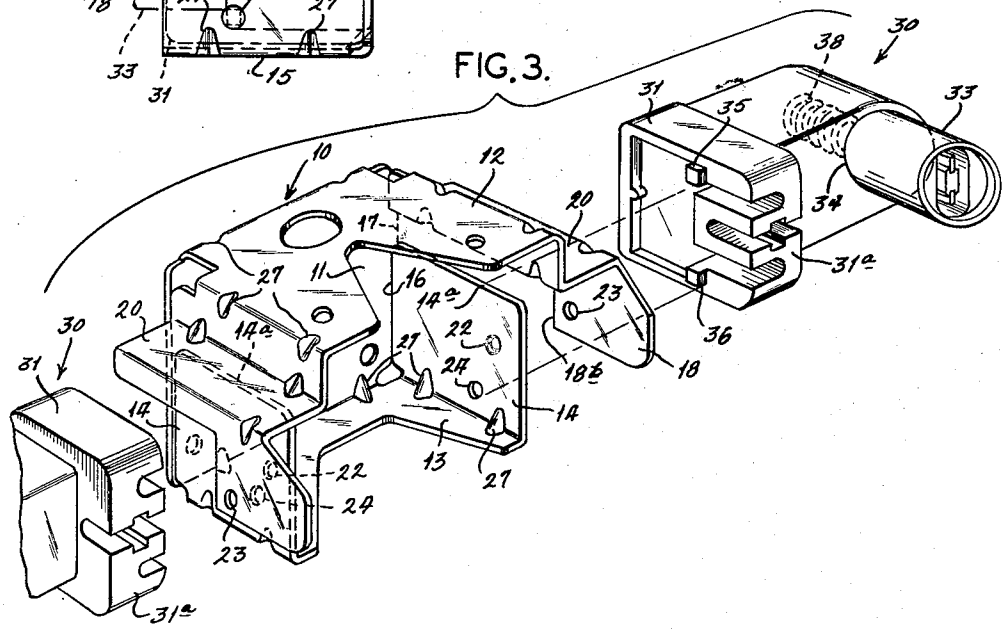


FIG. 3.



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FIG. 4.

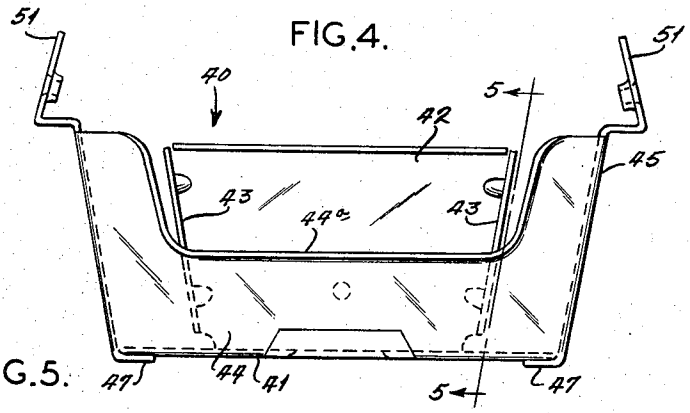


FIG. 5.

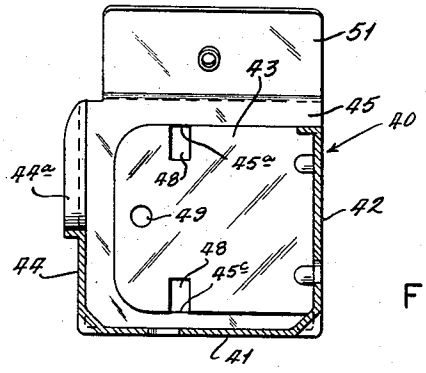
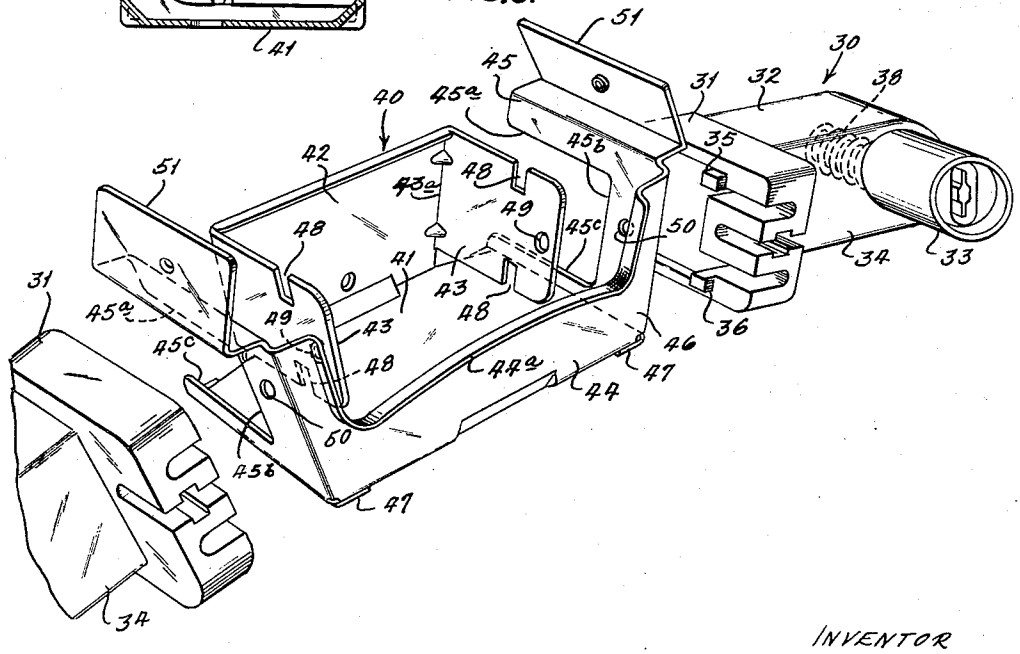


FIG. 6.



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FIG. 7.

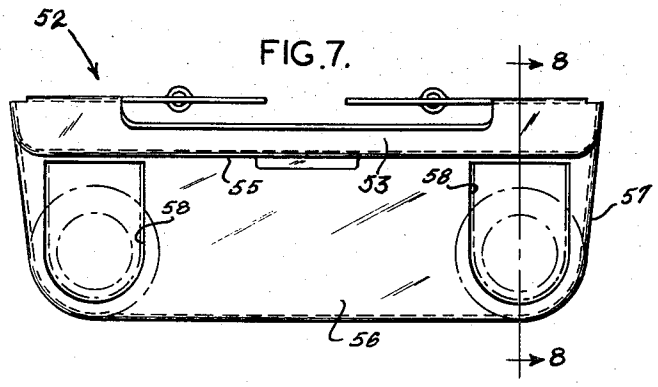


FIG. 8.

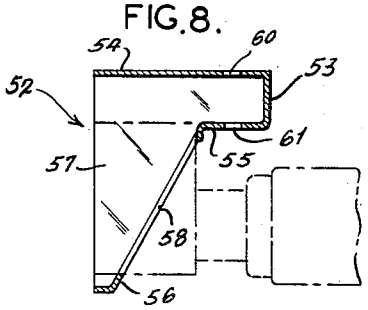
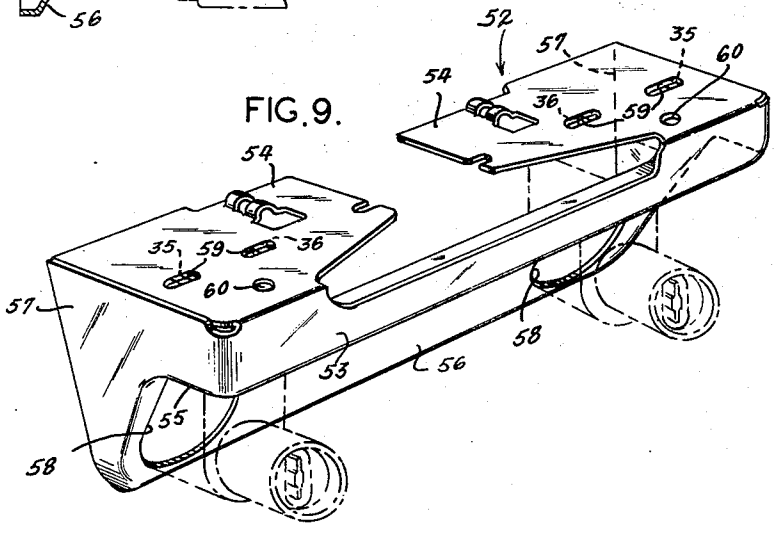


FIG. 9.



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FIG. 10.

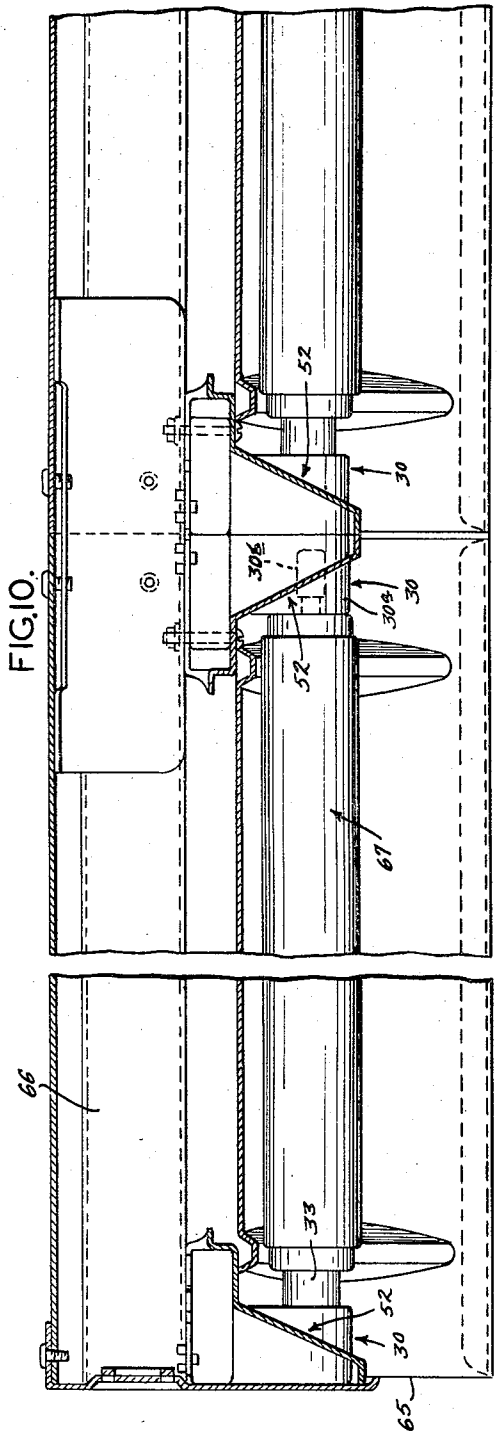
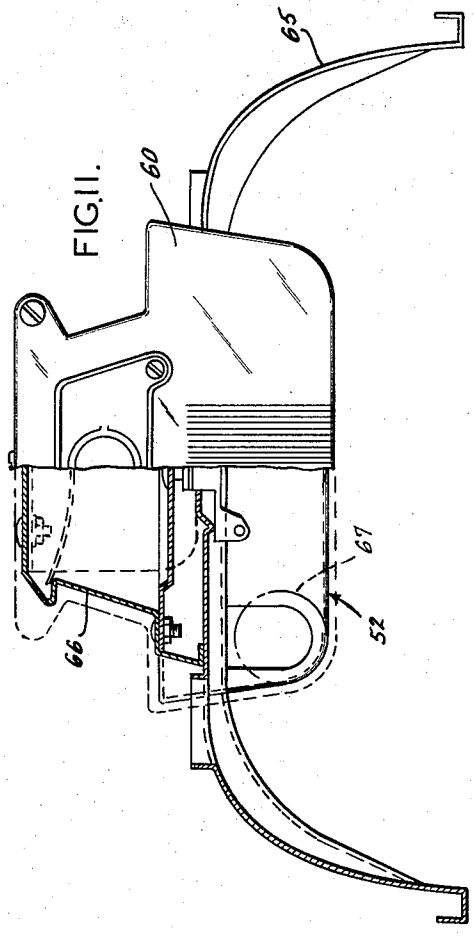


FIG. 11.



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MOUNTING FIXTURE FOR TUBULAR LAMP SOCKETS

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Filed Jan. 31, 1955, Ser. No. 484,891

5 Claims. (Cl. 240—51.11)

This invention relates to improvements in mounting fixtures for tubular lamp sockets, and is particularly applicable to mounting fixtures for use with spring loaded lamp sockets.

Heretofore spring loaded type lamp sockets have not been secured in lighting assemblies so as to assure a rigid or nonyielding support capable of resisting the twisting and turning effect caused by the continuous load action exerted by the use of spring type sockets. The necessity for providing a nonyielding support has created the objectionable feature that the lamp sockets are very difficult to remove, and in some cases it requires removal of the whole lighting assembly.

It is an object of the present invention to provide a mounting fixture of simple form and construction which will possess accurate locating features and will readily permit assembly and disassembly of the lamp sockets without impairing rigidity of support.

It is also an object of this invention to provide a mounting fixture of the foregoing type having a construction which will assure a rigid mounting of the lamp sockets in a position of accessibility and under conditions of simple tension and compression forces in the structural parts of the fixture.

A further object of this invention is to provide a mounting fixture for lamp sockets of the spring loaded type which may be manufactured to tolerance required for interchangeability of parts.

These and other objects and advantages of the present invention will be set forth in greater detail in connection with the accompanying description of said forms of the invention.

Generally, the invention consists in a mounting fixture formed with an open sided pocket in which two oppositely arranged spaced wall portions of the fixture act to hold the lamp socket in proper position, and wherein one of the spaced walls is formed with recesses for receiving projections carried on the sockets, thereby assuring proper positioning of the sockets. The invention further consists in the foregoing mounting fixture, wherein the cooperating spaced walls are arranged relative to the main body of the fixture to provide a rigid support for the lamp sockets without interfering with the quick and easy removability of the socket from the open sided pocket.

The invention further consists in the parts and components of the mounting fixture which will be particularly described in view of the embodiments of the invention illustrated in the accompany drawings wherein:

Fig. 1 is a front elevational view of a mounting fixture which embodies the present invention;

Fig. 2 is a side view of the mounting fixture seen along line 2—2 of Fig. 1;

Fig. 3 is an exploded perspective view of the mounting fixture and typical spring loaded type tubular lamp sockets adapted to be removably supported in the mounting fixture;

Fig. 4 is a front elevational view of a mounting fixture of modified form;

Fig. 5 is a transverse sectional elevational view taken along the line 5—5 in Fig. 4;

Fig. 6 is an exploded perspective view of the mounting fixture shown in Fig. 4, and typical spring loaded type tubular wall sockets adapted to be removably mounted therein;

Fig. 7 is a front elevational view of a further modified mounting fixture.

Fig. 8 is a transverse sectional elevational view as seen along the line 8—8 in Fig. 7;

Fig. 9 is a perspective view of the mounting fixture shown in Fig. 7, together with typical tubular lamp sockets removably positioned in the mounting fixture;

Fig. 10 is a longitudinal sectional elevational view of a lighting fixture assembly in which the mounting fixture of Fig. 9 is incorporated; and

Fig. 11 is an end elevational view of the assembly of Fig. 10, part of the same being shown in sectional detail.

Reference will now be directed to Figs. 1, 2 and 3, wherein one form of the present mounting fixture is shown. The fixture generally indicated at **10** includes a sheet metal body having a main wall **11** which connects walls **12** and **13**. The wall **13** is provided with spaced wall portions **14** which are integrally connected thereto at the bent or closed corners **15**. Each of the wall portions **14** has one of its edge margins **16** (Fig. 2) lying adjacent the edge **17** of the main wall **11**. The wall **12** is provided with oppositely positioned wall portions **18** which are spaced outwardly from the wall portions **14** and are also offset relative to the walls **14** as will be more particularly described. Each of the wall portions **18** constitutes a part of the wall **12** by being connected thereto through an angle wall having the angularly related portions **19** and **20** which mutually act to stiffen and brace wall portion **18**. Wall **19** is free of connection with the main wall **11** so that wall portion **18** is free to pivot about the closed corner **21**, thereby permitting a change in spacing between the wall portions **18** and **14**.

The wall portions **14** and **18**, and the wall **20** form three sides of a pocket which is open at the bottom and at the two opposite ends. This may be seen by comparing Figs. 1 and 2. Additionally, wall portion **18** is provided with a notch defined by the edges **18***a* and **18***b*. The notch edge **18***a* is, in this instance, arranged to be opposite and slightly onut of alignment with the spaced edge **14***a* of wall portion **14**, as may be seen in Fig. 2. Wall portion **14** is provided with an aperture **22** which is spaced from but in axial alignment with an aperture **23** in wall portion **18**. In addition, wall portion **14** is formed with an aperture **24** adjacent to the corner **15**, and generally opposite the notch **18**, particularly the notch edge **18***b*.

The mounting fixture **10** is suitably secured in a horizontally arranged lighting fixture (see Fig. 10) in the position of Fig. 1, whereby the pockets on each side of the body are open downwardly and longitudinally. Attachment of the fixture is through the wall **12** or the wall **11**, suitable openings **25** and **26** in wall **11** being provided for the purpose of access for electrical wires. The whole body **10** is stiffened by means of a plurality of corner indentations **27** made in the forming process.

Referring to Fig. 3, a typical spring loaded lamp socket is shown at **30**. A socket of this general character is disclosed and claimed in Kukla Patent 2,495,196, dated January 17, 1950. This socket is seen to include a base **31**, a projecting housing **32** and a lamp contact plug **33** which is movable through an aperture **34** in the housing **32**. A suitable spring **38** is contained in the housing **32** in position to abut the inner end of plug **33** for the pur-

pose of maintaining the plug in extended position. The base 31 of socket 30 is formed with projecting pins, lugs, or the like 35 and 36 which are adapted to be utilized in the location and retention of the socket in the body 10 of the mounting fixture.

Assembly of the socket 30 in the open sided pocket of body 10 is accomplished by positioning the base 31 in the notch formed in wall portion 18 while maintaining the position of the socket 30 as shown in Fig. 3. The socket 30 is then pushed between the wall portions 14 and 18 by reason of the fact that these wall portions are capable of relative separation to receive the end 31*a* of the socket base 31. Continued movement in this direction will bring pin 36 on base 31 adjacent opening 24, and pin 35 will assume a position adjacent edge 14*a* and against the outer surface of wall portion 14. The forward movement of socket 30 will be arrested by contact between the face of housing 32 and the margin 18*b* of notch 18. At this time, the socket 30 can be pushed toward the wall 20 to bring the housing 32 into contact with notch margin 18*a*. This latter movement will result in locating pin 35 snapping over the edge 14*a* of wall portion 14 and locating pin 36 snapping into the opening 24. The snap action is attained because of the resiliency and relative movement provided between wall portions 14 and 18. Once the socket 30 has been fully positioned, as determined by the locating pins 36 and 35 and the margins of notch 18, a suitable securing means is inserted in the aligned apertures 22 and 23 to retain or clamp the wall portions 14 and 18 against the opposite faces of the socket base 31. The retaining means is shown in Fig. 1 at 37.

In Fig. 3, the socket 30 is shown provided with the internal spring 38 which asserts an outward thrust on the plug 33 at all times. This spring 38 is intended to push the plug 33 against the end contact (not shown) of a tubular type lamp, whereby positive electrical contact may be made for the purpose of preventing electrical arcing, poor contact due to atmospheric conditions, and to overcome vibration or similar relative movement between the contact in the plug and the tubular lamp. The constant pressure of spring 38 on the tubular lamp creates a force along the length of the lamp which is received by the socket 30 and by a co-operating socket (as shown in Fig. 10) at the opposite end. Therefore, there is a constant force directed along the axis of the plug 33 which, in turn, means that a turning moment is exerted through the socket housing 32 upon the base 31, and this is transmitted into the body of the mounting fixture 10. According to the right hand portion of the view of Fig. 3, this turning moment assumes a counterclockwise direction about edge 17 of body wall 11. The effect of this force is experienced also about the rearward margin 16 of wall portion 14. The accompanying reaction in wall portion 18 exerts tension in the wall 12 of body 10. The wall portion 18 is directly connected through the means 37 with wall portion 14, whereby the counterclockwise moment on wall portion 14 is resisted by the action of wall portion 18, and wall portion 18 is maintained in rigid relationship through the rigidity of the angularly related legs 19 and 20 and by the strength in tension of the body wall 12. Accordingly, a rigid mounting is achieved for the socket 30, and proper positioning of the socket is obtained by means of the locating opening 24 in wall portion 14, in co-operation with the margins of the notch in wall portion 18.

The foregoing description has been given with respect to one of the pockets (the right hand one in particular) of the mounting fixture body 10. It is obvious that the opposite pocket is similarly but reversely formed. Therefore, the foregoing description and reference numerals will apply equally to either of the pockets.

In Figs. 4, 5 and 6 a modified form of mounting fixture is shown at 40. This mounting fixture 40 includes a body having a main wall 41 which connects walls 42 and 44. The opposite margins of wall 42 are slightly convergently directed toward the wall 41 (Fig. 4), and a wall portion 43 is carried by the wall 42 at each of these tapered margins. The wall portions 43 each extend toward the wall 44 of the body, but each is free of contact with the wall 44 and with the wall 41. The opposite margins of wall 44 are similarly angularly directed to form integral wall portions 45. In Fig. 6, the wall portions 43 and 45 are shown in spaced relationship at each end of the body 40 so that a pocket is formed between each of the spaced pairs of wall portions 43 and 45. This pocket is similar to the pocket formed between wall portions 14 and 18 in the form of the body shown at 10 in Fig. 1. Wall 43 is permitted a certain degree of movement relative to wall 42 by being free of contact along its remaining three margins, and wall portion 45 is free to move about the corner 46 and relative to wall 44 since its other three margins are free. One margin of wall portion 45 is provided with an inturned stiffening flange 47 which is slidable against the surface of wall 41. The opposite margin of wall portion 45 is formed with an angularly formed attachment tab 51.

As described above, the spaced wall portions 43 and 45 form a pocket therebetween to receive the base 31 of the tubular lamp socket 30. The wall portion 45 is formed with a notch having margins 45*a*, 45*b* and 45*c*. Margins 45*a* and 45*c* are spaced apart a distance equal to the width of the socket housing 32 and margin 45*b* forms the closed end of the notch for the purpose of locating the front face 34 of the socket housing in the body 40. Wall portion 43 is provided with a pair of openings or notches 48 adapted to receive the pins 35 and 36 formed on the base 31 of socket 30. In addition, aligned apertures 49 and 50 are formed in the respective wall portions 43 and 45 so that the securing means 37 (Fig. 1) may be inserted to clamp the wall portions 43 and 45 against the opposite sides of the socket base 31.

The projecting plug 33 in the socket 30 is continuously subjected to pressure from the internal spring 38, whereby a counter clockwise turning moment (right hand portion of Fig. 6) is exerted at the closed corner 43*a* between walls 43 and 42, and the accompanying reaction in wall portion 45 is resisted by tension in the wall 44 of the body 40. Additional strength in wall 44 is obtained by means of the marginal flange 44*a*.

A modified mounting fixture is disclosed in Figs. 7, 8 and 9. This form of the mounting fixture comprises a body 52 having a main wall 53 which connects wall portions 54 and 55. The body also includes a wall extension 56 carried by the wall portion 55. The body 52 is provided with a side wall 57 which is integral with the wall 53 and wall extension 56 for the purpose of stiffening the body. Wall extension 56 is formed with one or more notches or elongated openings 58 (two being shown) for the purpose of locating the socket housing 32 in position allowing the plug 33 to project outwardly for engagement with the end portion of the tubular lamp (not shown).

As shown in Figs. 7 and 9, each of the wall portions 54 is provided with spaced openings 59 which are adapted to receive the locating pins 35 and 36 on the socket base 31 for locating the socket 30 in proper position, assisted by the opening 58 in wall extension 56 of the body 52. Pins 35 and 36 are snap fitted into the openings 59 by reason of the relative yieldability of wall portion 54 with respect to the spaced wall portion 55. It is observed that wall portions 54 and 55 define a pocket in the body 52 to receive the socket 30. Suitable apertures 60 and 61 in aligned relation are formed respectively in wall portions 54 and 55 to receive the securing means 37, whereby the socket base 31 may be secured in the pocket.

Figs. 10 and 11 disclose a lighting fixture of a form which includes a troffer structure 65 and a head structure 66 of any well known form. The lighting fixture is equipped with a longitudinally spaced pair of tubular

lamp socket mounting fixtures of the type shown at **52** in Figs. 7, 8 and 9. For example, the left hand one of the mounting fixture bodies **52** is provided with a spring loaded plug type socket **30** and the right hand one of the bodies **52** is provided with a complementary socket **30***a* which differs from the socket **30** in that no spring mounted plug is provided. Instead the socket **30***a* is equipped with a suitable fixed internal contact indicated at **30***b*. The mounting fixtures **52** are secured in the lighting fixture head **66** in opposed relationship so that the sockets **30** and **30***a* are in alignment to receive the tubular lamp **67**. The lamp is normally placed in the lighting fixture by engaging one end with the spring-loaded plug **33** and depressing the same sufficiently to permit the opposite end of the lamp **67** to be positioned with its end engaged with the internal contact **30***b* in socket **30***a*. This installation of the lamp **67** requires a certain degree of over travel of the plug **33** so that when the lamp is in proper position, the plug **33** will remain slightly inwardly displaced, thereby assuring positive loading by the internal spring **38**.

The foregoing described embodiments of the present invention include the advantages of simplicity of construction, positive securing of the lamp sockets, and spaced arrangement of spaced socket receiving pockets wherein the pockets are fixed by intervening walls of the mounting body against displacement due to the constant spring load from the socket springs pushing on the lamps. The intervening walls of the mounting body serve in either tension or compression for the most part, assisted by the clamping effect of the removable securing means.

What I claim is:

1. In a mounting fixture for supporting a lamp socket in a positive but releasable manner, the combination with the lamp socket of a mounting fixture comprising a body having a main space defined by angularly related walls and an adjacent pocket space to receive the lamp socket, said pocket space being defined by first and second walls spaced apart and other wall means connecting said first and second walls in relatively yieldable relation to permit said pocket space to be increased to receive the lamp socket, said first wall having an enlarged socket locating opening therein and said second wall having at least one aperture smaller than and disposed opposite said locating opening, said opening and aperture being engaged by different parts of the lamp socket to position the same and the yieldable relation of said first and second walls causing the latter walls to retain the lamp socket at opposite sides in a push-fit relation, and means releasibly engaging said first and second walls to secure the same against yielding movement.

2. The mounting fixture set forth in claim 1 wherein said first and second walls are parallel and said other wall is integral with said first and second walls and angularly connected therewith to define a third wall of the pocket space.

3. The mounting fixture set forth in claim 1 wherein the enlarged locating opening in said first wall has at least two angularly related adjacent edges engaged by the lamp socket, and said aperture in said second wall being substantially aligned with one of said angularly related edges of said locating opening.

4. The mounting fixture set forth in claim 1 wherein the enlarged locating opening in said first wall has spaced apart edges engaged by the lamp socket, said aperture in said second wall being substantially aligned with one of said spaced apart edges of said first wall, and said second wall having other lamp socket alignment means substantially aligned with the another of said spaced apart edges of said first wall.

5. In a mounting fixture for supporting a lamp socket in a positive but releasable manner, the combination with the lamp socket of a mounting fixture comprising, an integral body formed with angularly related main walls and having a lamp socket mounting space adjacent the main walls, said mounting space being defined by a first wall integrally connected to one of said main walls and being angularly related and yieldable with respect thereto and a second wall spaced from said first wall and being integrally connected to another one of said main walls in angular relation with respect thereto, said first and second wall being substantially parallel and having openings therein to engage and position the lamp socket therebetween, said first wall yielding relative to said second wall to admit the lamp socket fully into the mounting space and retain the same in position between said first and second walls and engaged in said openings.

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