

[54] **APPARATUS FOR HOLDING PARTS
BETWEEN WHICH WIRING IS TO EXTEND
IN SELECTED PIVOTAL POSITIONS WITH
RESPECT TO ONE ANOTHER**

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403/52, 117; 248/276; 285/263, 264

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[57]

ABSTRACT

There is disclosed apparatus for mounting a light fixture in selected pivotal positions on and with respect to a base through which wiring from the fixture is to extend.

8 Claims, 6 Drawing Figures

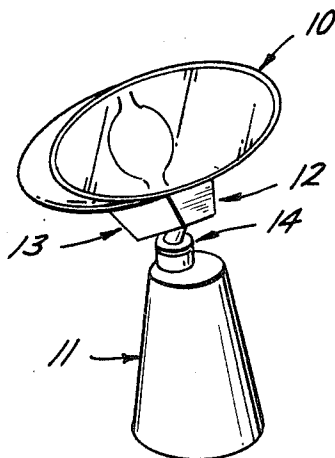


Fig. 1

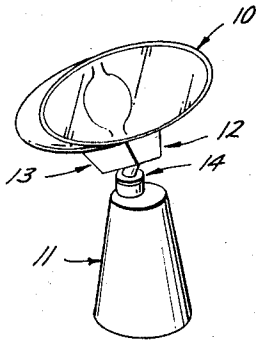


Fig. 2

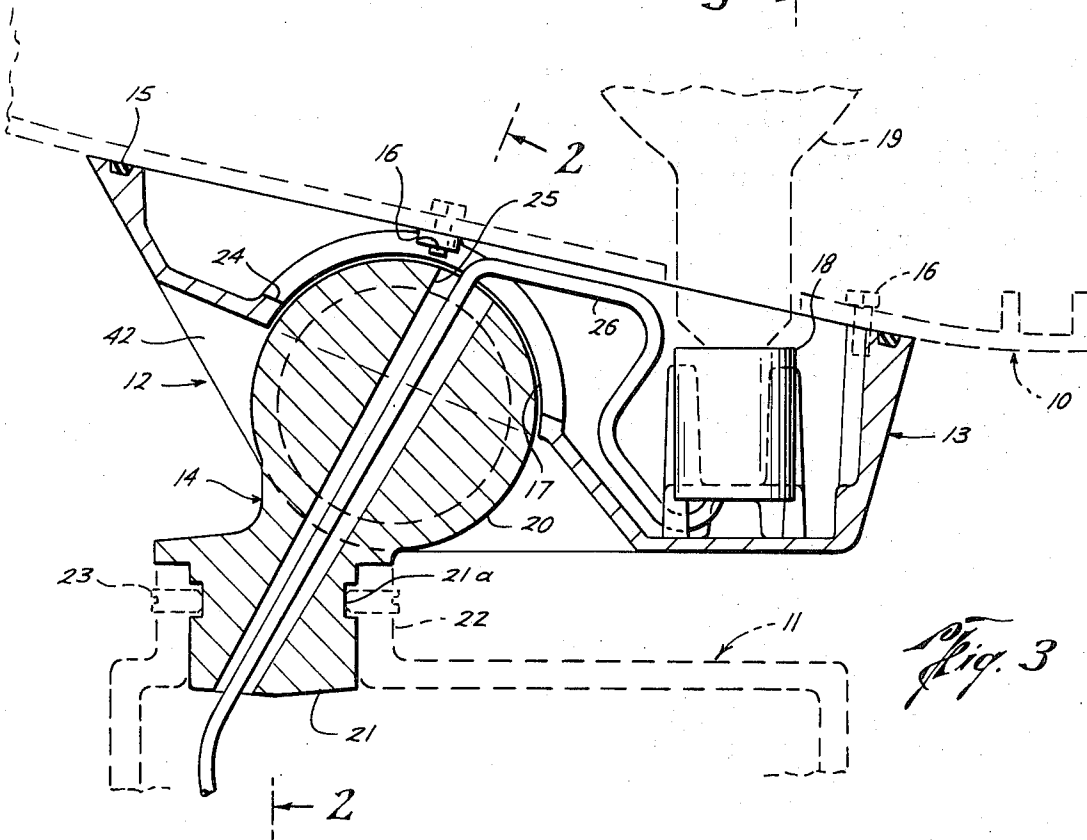
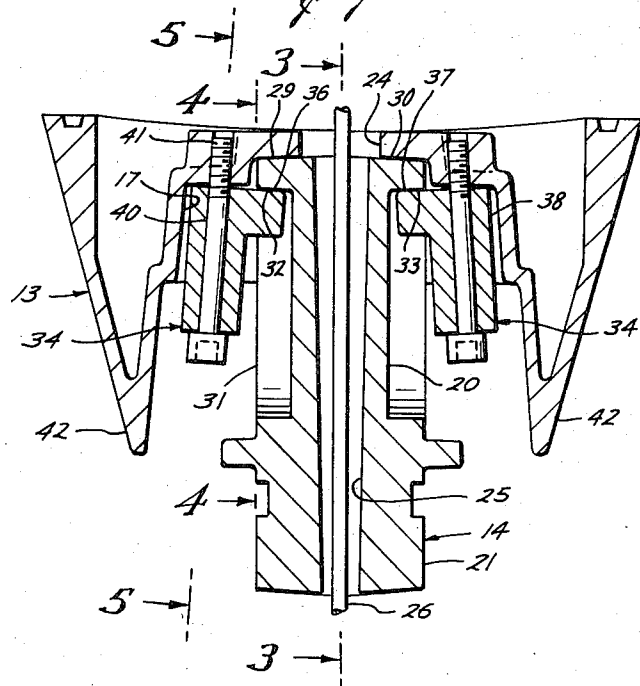


Fig. 6

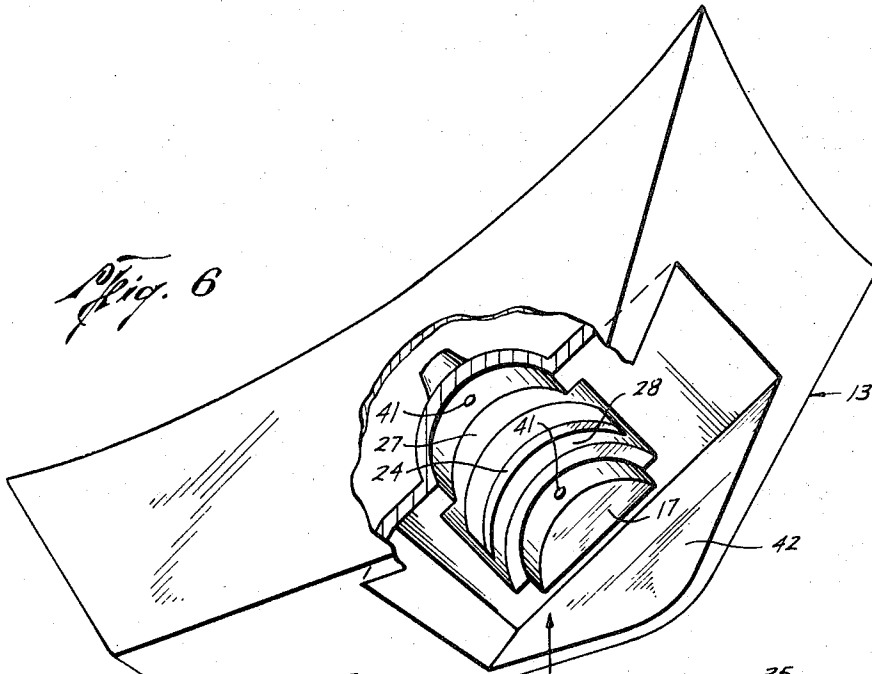


Fig. 4

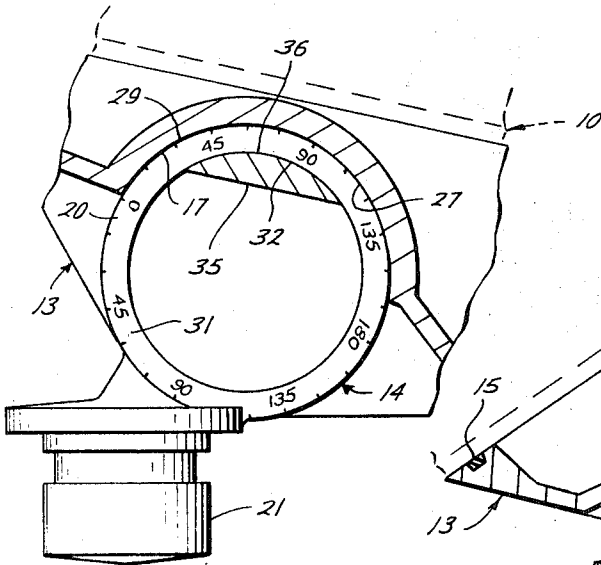
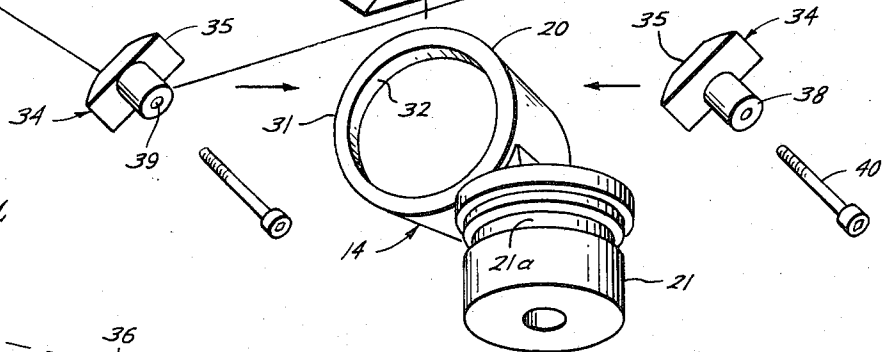
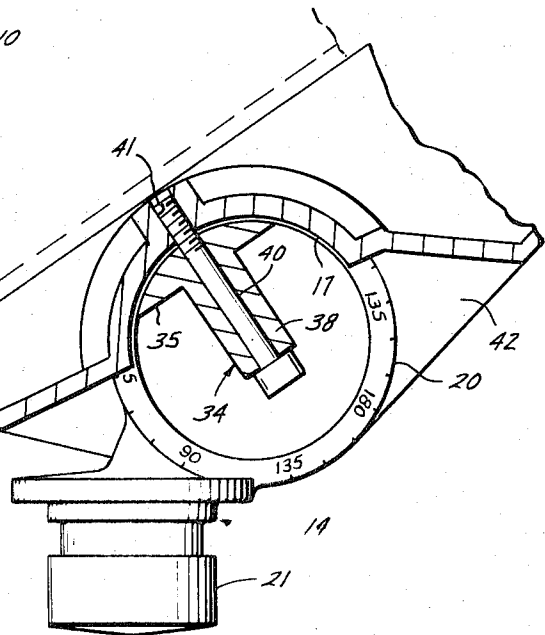


Fig. 5



APPARATUS FOR HOLDING PARTS BETWEEN WHICH WIRING IS TO EXTEND IN SELECTED PIVOTAL POSITIONS WITH RESPECT TO ONE ANOTHER

This invention relates to improved apparatus for holding parts between which wiring is to extend in selected pivotal positions with respect to one another. More particularly, it relates to improved apparatus for mounting a light fixture or other object in such a manner that it may be tilted upwardly or downwardly relative to a base through which wiring from the fixture is to extend.

Apparatus now provided for this purpose comprises a pair of discs, or "clam shells," having oppositely facing, concave faces adapted to be releasably clamped together by a bolt extending horizontally through them. Each disc has a holder on one end for connection to the fixture and the base, respectively, so that the bolt may be loosened to permit the fixture to be swung into a selected tilted position relative to the base, and then tightened to hold the fixture in that position. Each holder has an opening to receive electrical wiring which extends from the fixture, through the discs, and into the base, so that the wiring is concealed from sight and protected from the weather and other damage.

One problem which has been encountered with connecting apparatus of this type is that the wiring has a tendency to be damaged by or entangled with the bolt, particularly as the disc connected to the fixture is pivoted relative to the disc connected to the base. Also, since the bolt extends horizontally through the discs, it is loaded in shear by the weight of the fixture, which results in a weak structural connection, especially since the bolt is in tension. Still further, the connecting bolt must be manipulated from the side of the discs, so that it's impractical to conceal it or protect it from water. Therefore, the apparatus is subject to weathering and presents an appearance which is not entirely pleasing from an architectural standpoint.

It is an object of this invention to provide apparatus of this type for connecting these or other parts in such a way that there is little or no likelihood of the wiring becoming damaged or entangled.

Another object is to provide such apparatus which provides a strong structural connection between the parts, and, more particularly, which does not require connecting bolts which are loaded in shear.

Still another object is to provide such apparatus in which connecting bolts, and, preferably, most of the remaining portions thereof, are not only protected from weathering, but also concealed from sight.

Yet another object is to provide such apparatus which accomplishes two or more of the foregoing objects.

These and other objects are accomplished, in accordance with the illustrated embodiment of the invention, by means of apparatus comprising a first member adapted to be connected to one part, which may be a light fixture, and a second member adapted to be connected to the other part, which may be a base. The first member has a pair of arcuate bearing surfaces on one end thereof, and the second member has a pair of first arcuate bearing surfaces each for movement into a position fitting concentrically against a bearing surface of the first member, so that, when said surfaces are so positioned, the bearing surfaces are slidable over one an-

other to permit the members to be swung between selected positions relative to one another.

The second member also has a pair of second bearing surfaces each concentric with a first bearing surface thereon, and the apparatus includes a pair of bodies each having an arcuate bearing surface movable into a position for fitting concentrically against a second bearing surface on the second member. Means are also provided for connecting each body to the first member, when the body is so positioned, in such a manner that the bearing surface thereon may be moved toward and away from the bearing surface on the first member, so as to alternately clamp and unclamp the bearing surfaces on the second member therebetween, whereby said members may be held in a selected pivotal position with respect to one another or released therefrom for swinging between different selected pivotal positions with respect to one another. One of the members has an opening intermediate its bearing surfaces, and the other member has an arcuate slot intermediate its bearing surfaces which is aligned with the opening in different pivotal positions of said members. Thus, wiring may extend between the members through the slot and opening with little or no likelihood of its becoming damaged or entangled.

In the illustrated and preferred embodiment of the invention, the means for connecting the bodies to the first member comprise bolts which extend in a direction generally perpendicular to the pivotal axis of the members. Thus, when one part is a light fixture or the like supported on a base, the load of the light fixture is carried on the bearing surfaces, rather than on the bolts. More particularly, the bolts are extendible past the bearing surfaces on the second member so as to connect the bodies directly to the first member, thereby maintaining the full structural integrity of the portion of the second member on which its bearing surfaces are formed.

More particularly, the bearing surfaces on the first member are concave and formed on a recess in its lower end, and the first bearing surfaces on the second member are convex and formed on opposite sides of a disc-shaped upper end of the second member which is movable with the clamping bodies upwardly into the recess. More particularly, the first bearing surfaces on the second member are formed on the outer circumferences of flanges on opposite sides of the end of the second member, and the inner circumferences of the flanges provide concave second bearing surfaces against which convex bearing surfaces on the clamping bodies are concentrically fittable. Thus, the portions of the opening and slot through which the wiring extends are within the recess, and thus to this extent protected from weathering. More particularly, the slot for receiving the wiring is formed in the first member, and the opening for the wiring is formed in the second member, so that no portion of the slot is uncovered during relative pivotal movement between the members.

Although disposal of the disc-shaped portion of the second member within the recess of the first member will conceal to some extent otherwise unsightly parts, and further even though the extension of the bolts in a direction perpendicular to the axis of pivoting will in some cases conceal their ends, it is further preferred that the first member have walls on each side thereof which extend downwardly from the recess to a level beneath the clamping bodies, and more particularly, to a

level beneath substantially the entire portion of the disc-shaped end of the second member.

In the drawings, wherein like reference characters are used throughout to designate like parts:

FIG. 1 is a perspective view of a light fixture mounted on a base by means of apparatus constructed in accordance with the present invention;

FIG. 2 is a cross-sectional view of the apparatus, as seen along broken lines 2—2 of FIG. 3;

FIG. 3 is another cross-sectional view of the apparatus, as seen along broken lines 3—3 of FIG. 2;

FIGS. 4 and 5 are additional cross-sectional views of portions of the apparatus, as seen along broken lines 4—4 and 5—5, respectively, of FIG. 2, and showing the first and second members moved to different pivotal positions with respect to one another; and

FIG. 6 is an exploded perspective view of the apparatus, as seen from beneath and one side thereof, and with the first member broken away in part.

With reference now to the above-described drawings, a light fixture in the form of a floodlight 10 is shown in FIG. 1 to be mounted on a base 11 by means of apparatus 12, which with the base 11 supported on a generally horizontal surface, enables the floodlight to be tilted about a generally horizontal axis so as to adjust the direction of light reflected therefrom. More particularly, and as will be described below, the apparatus is of such construction that it permits the floodlight to be held in different selected pivotal positions, while, at the same time, permitting wiring to extend from the floodlight to the base without being subject to weathering conditions, and further with little or no likelihood of it being damaged or entangled during adjustment of the floodlight.

As previously mentioned, the apparatus 12 includes a first or upper member 13 connected to the floodlight 10, and a second or lower member 14 connected to the base 11. As shown in FIGS. 2 to 6, the first member 13 comprises a hollow housing or casing having an open, generally rectangular upper end adapted to fit against the lower side of the floodlight 10. More particularly, the upper edges of the housing walls are provided with a groove to receive a gasket 15 for sealing between the housing and the floodlight, and bolts 16 or the like (see FIG. 3) are provided for connecting the first member to the floodlight when it is so fitted and sealed thereagainst.

The forward portion of the bottom wall of the member 13 is depressed to provide space for a socket 18 mounted in an upright position for receiving the lower electrical end of a lamp 19 extending upwardly within the floodlight. The rearward portion of the bottom wall of the member 13 is provided with a downwardly facing, generally semi-cylindrically shaped recess 17 disposed with its axis disposed transversely of the length of the member 13.

The second member 14 has a disc-shaped upper end 20 adapted to be moved upwardly into the recess 17 when turned to a position in which its axis is also disposed transversely of the length of the member 13. More particularly, and as will be described more fully hereinafter, the upper end 20 of the member 14 is adapted to fit concentrically against a portion of the recess 17, so that the members 13 and 14 may be pivoted about the aligned axes of the recess and end.

The lower end of the member 14 has a stem 21 connecting eccentrically of the disc-shaped end 20 and

adapted to be releasably connected to the upper end of the base 11. More particularly, the stem 21 is of cylindrical shape for fitting closely within a cylindrical neck 22 extending upwardly from the top side of the base 11.

A groove 21A is formed about the stem to receive extendible and retractable pins 23 carried by the neck 22 of the base 11. Thus, the pins may be extended inwardly to engage in the groove 21A and thus hold the apparatus 12 and floodlight 10 in a desired rotatable position with respect to the base 11, or retracted to permit the stem 21 to be rotated within the neck 22 so as to dispose the member 12 and floodlight 10 in another desired rotative position with respect to the base 11.

A slot 24 is formed in the bottom wall of the member 13 intermediate opposite sides of the recess 17 and extends in a direction transverse to the pivotal axis of the members. A passageway 25 extends generally vertically through the member 14 to provide an opening in the disc-shaped end 20 which is aligned with the slot 24 in all pivotal positions of the members with respect to one another. Thus, wiring 26 extending from the socket 18 and through the slot 24 of passage 25 into the base 11 is free of obstructions which might otherwise damage it or cause it to be entangled.

The recess 17 in the member 13 has concave bearing surfaces 27 and 28 disposed on opposite sides of the slot 24, and the upper, disc-shaped end 20 of the member 14 provides convex bearing surfaces 29 and 30 on opposite sides of the upper openings of the passageway 25. More particularly, these surfaces on the member 14 are curved to the same radius as those in the recess so as to fit concentrically thereagainst when such end is moved up into the recess 17. Thus, as previously described, the bearing surfaces 27 and 28 on the upper member 13 are slidable over the bearing surfaces 29 and 30 on the lower member 14 to permit the upper member, and thus the floodlight 10, to be swung between selected tilted positions relative to the lower member 14 and base 11.

The limits of pivotal swinging of the member 13 relative to the member 14 are, of course, defined either by engagement of the member 13 with the base 11, when the floodlight 10 is tilted downwardly, or by engagement of the rear edge of the recess 17 with the connection of the end 20 with the stem 21 of the lower member 23. In any event, since the slot 24 is formed in the upper member 23, it is at all times opposite a solid portion of the upper end of the lower member 14. In like manner, the upper opening from the passageway 25 is never swung out of alignment with the slot 24. Consequently, the interior of the housing or casing of the upper member 13 is essentially closed at all times.

As best shown in FIG. 2, the upper end 20 of the lower member 14 has a flange 31 formed on each side thereof, and the outer circumferences of the flanges provide the abovedescribed bearing surfaces 29 and 30. More particularly, the inner circumference of each flange is concentric with its outer circumference, so that concave bearing surfaces 32 and 33 formed on the inner circumferences of the flanges are concentric with the outer convex bearing surfaces 29 and 30, respectively. As a result, the concave bearing surfaces 32 and 33 are also concentric with the concave bearing surfaces 27 and 28 on the upper member 13 when the upper end 20 is in the position described and shown in FIGS. 2 to 5.

As previously described, a pair of bodies 34 are provided for use in connecting and holding the members 13 and 14 in selected pivotal positions with respect to one another. For this purpose, and as shown in FIG. 2, the recess 17 is of such width as to permit a body 34 to move upwardly into the recess on each opposite side of the upper end 20 of the member 14. Each such body has an arcuate upper head 35 which provides a bearing surface for fitting concentrically against a concave bearing surface on a flange 31. Thus, the bearing surface 36 on one head is adapted to fit concentrically against the bearing surface 32 on one flange, and the bearing surface 37 on the head of the other body is adapted to fit concentrically against the bearing surface 33 on the other flange. With the bearing surfaces on the bodies so disposed, the bodies may be pivoted with the upper member 13 relatively to the member 14.

Each of these bearing surfaces 36 and 37 is formed on a laterally offset portion of a head 35, and thus to one side of a neck or stem 38 which extends downwardly from the head adjacent to the opposite sides of the recess 17. Holes 39 are formed through each stem and head 35 to receive a bolt 40 adapted to threadedly engage with a hole 41 of the first member 13 intermediate its bearing surface and the adjacent side of the recess 17. The portions of the first member with which the bolts 40 connect are also arcuate and concentric with the bearing surfaces 27 and 28, but so positioned with respect thereto that, when the bolts 40 are threadedly made up with holes 41, the bodies 34 will capture the flanges on opposite sides of the head 20 between the bearing surfaces on the bodies 34 and the first member. Since the bolts connect directly with the first member, they do not detract from the structural integrity of the flanges 31 of the second member.

As will be apparent, the bolts 40 may be made up tight to clamp the flanges 31 between the bearing surfaces on the bodies and first member, and thereby hold said first and second members in a selected pivotal position with respect to one another. On the other hand, the bolts may be backed off far enough to unclamp the flanges and thereby permit the first member to be swung with the bodies 34 to different selected pivotal positions with respect to one another.

As will be apparent from FIG. 2, the heads of the bolts are engageable by suitable tools manipulatable from beneath the recess. Since these bolts extend in a direction generally transverse to the axis about which the upper member pivots, they are not in shear, and instead, the load of the upper member and floodlight on the lower member and base is along the bearing surfaces between the first and second members. Furthermore, since the bolts extend generally vertically, they are positioned so that water may not seep between them and the holes through which they extend.

The lower portions of the bodies 34, as well as the lower ends of the pins 40, and preferably the lower portions of the flanges on the end 20 of the lower tubular member, are concealed from view and protected from the water by means of walls 42 on the upper tubular member which depend from the lower edge of the recess 17 on opposite sides of the upper member to a level generally opposite the outer circumference of the lower edges of the flanges. As will be apparent from FIG. 2, however, these depending walls do not interfere with the free passage of the bodies 34 into and out of the recess 17.

Although the members 13 and 14 are shown to be releasably connected to the light fixture 10 and base 11, respectively, they may be integrally connected thereto. Also, of course, although the apparatus is especially well suited for mounting a light fixture above a base, it may instead be used to hold other parts between which wiring is to extend.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth, together with other advantages which are obvious and which are inherent to the apparatus.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

The invention having been described, what is claimed is:

1. Apparatus for holding parts between which wiring is to extend in selected pivotal positions with respect to one another, comprising a first member adapted to be connected to one part and having a pair of arcuate bearing surfaces on one end thereof, a second member adapted to be connected to the other part and having a pair of first arcuate bearing surfaces each movable into a position fitting concentrically against a bearing surface on the first member, and a pair of second arcuate bearing surfaces each concentric with one of said first bearing surfaces, a pair of bodies each having an arcuate bearing surface movable into a position fitting concentrically against one of the second bearing surfaces on the second member, and means for connecting each body to the first member, when the body is so positioned, in such a manner that the bearing surface thereon may be moved toward and away from the bearing surface on the first member, so as to alternately clamp and unclamp the bearing surfaces on the second member therebetween, whereby said members may be held in a selected pivotal position with respect to one another or released therefrom for swinging between different selected pivotal positions with respect to one another, one member having an opening intermediate its bearing surfaces, and the other member having an arcuate slot intermediate its bearing surfaces to receive electrical wiring extending between said members, and said slot being aligned with the opening in different pivotal positions of said members.

2. Apparatus of the character defined in claim 1, wherein the connecting means comprise bolts extendible in a direction generally perpendicular to the pivotal axis of the members.

3. Apparatus of the character defined in claim 2, wherein the bolts are extendible past the bearing surfaces on the second member for connecting the bodies directly to said first member.

4. Apparatus for mounting an object in selected pivotal positions on and with respect to a base through which wiring from the object is to extend, said apparatus comprising a first member adapted to be connected to the object and having a recess in its lower end providing a pair of concave, arcuate bearing surfaces, a

second member adapted to be connected to the base and having a generally disc-shaped upper end adapted to be moved upwardly into the recess, said upper end of the second member having a flange about each side thereof which provides a convex, arcuate bearing surface fittable concentrically against a bearing surface on the first member, so as to permit said members to pivot between selected positions when said upper end is so moved, and a concave, arcuate bearing surface concentric with the convex bearing surface thereof, a pair of bodies each having a convex arcuate bearing surface adapted to be moved upwardly into the recess on one side of said upper end of the second member into a position fitting concentrically against a concave bearing surface of the second member, and means for connecting each body to the first member, when the body is so positioned, in such a manner that the bearing surface thereon may be moved toward and away from the bearing surface on the first member, so as to alternately clamp and unclamp the flange on the second member therebetween, whereby said members may be held in a selected pivotal position with respect to one another or released therefrom for swinging between different selected pivotal positions with respect to one another, one member having an opening intermediate its bearing

surfaces, and the other member having an arcuate slot intermediate its bearing surfaces to receive electrical wiring extending between said members, and said slot being aligned with the opening in different pivotal positions of said members.

5. Apparatus of the character defined in claim 4, wherein said connecting means comprises a pair of bolts each extendible through one of the bodies in a direction generally perpendicular to the pivotal axis of said members for threadedly connecting with the first member.

6. Apparatus of the character defined in claim 5, wherein each body has a portion to one side of its bearing surface, and the bolts extend through said portion and past the flanges of the second member for threadedly connecting directly with said first member.

7. Apparatus of the character defined in claim 4, wherein the first member has walls on opposite sides thereof which extend downwardly from the recess to a level beneath the clamping bodies.

8. Apparatus of the character defined in claim 4, wherein the slot is formed in the first member and the opening is formed in the second member.

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