Feb. 2, 1960 T. B. FARRINGTON ET AL 2,923,515

LOWERING HANGER WITH MECHANICAL ADVANTAGE

Filed Jan. 3, 1956 3 Sheets-Sheet 1

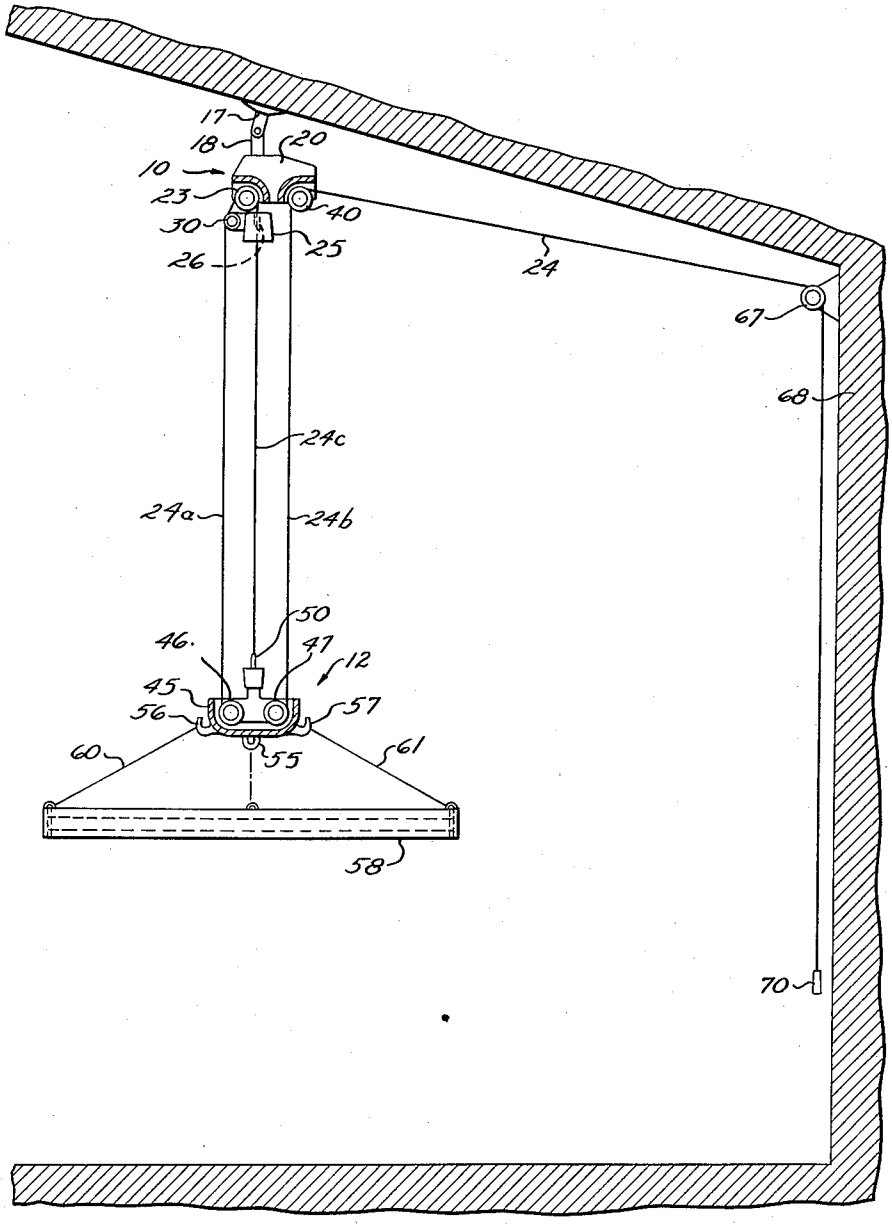


Fig. 1

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3 Sheets-Sheet 2

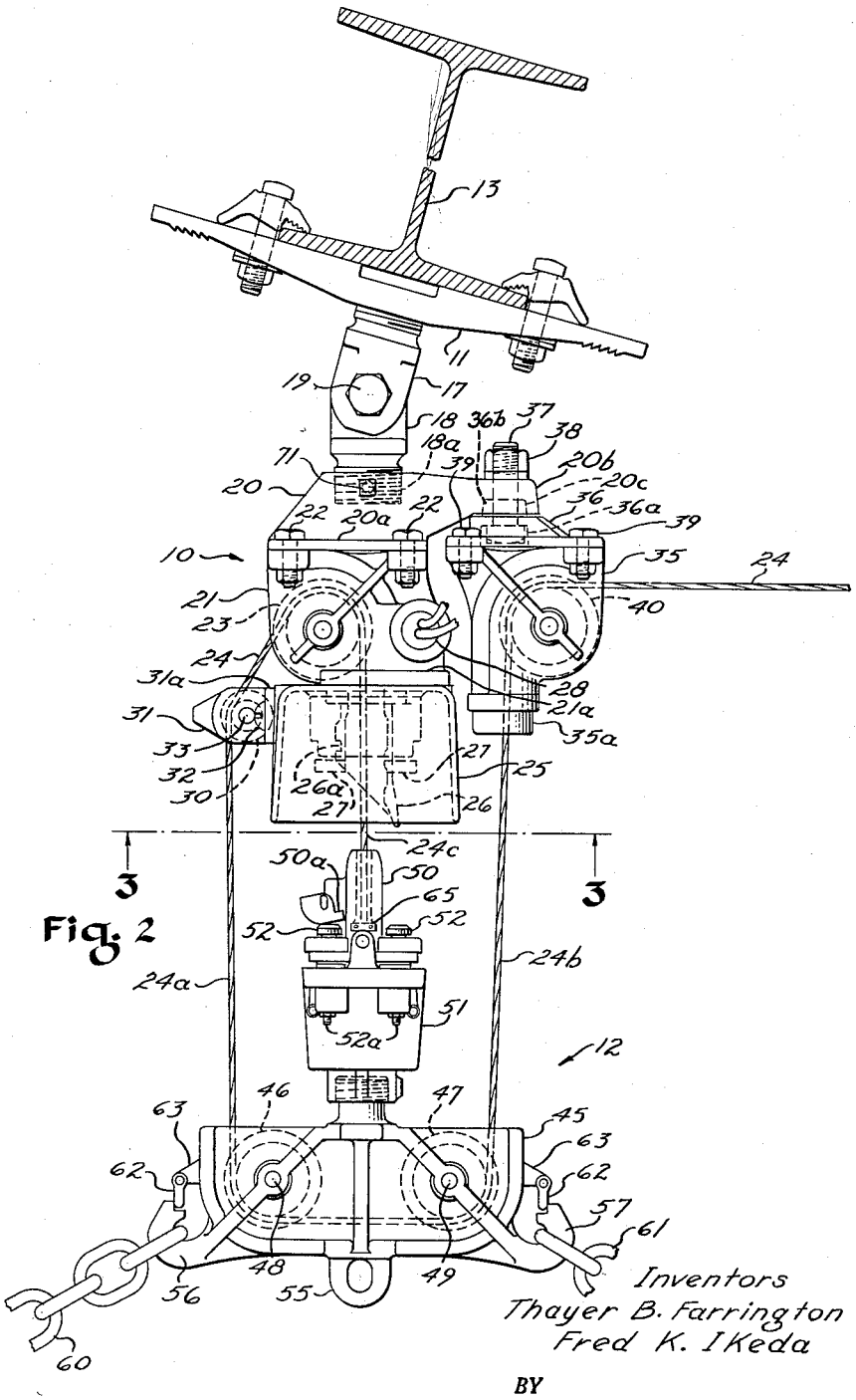


Fig. 2

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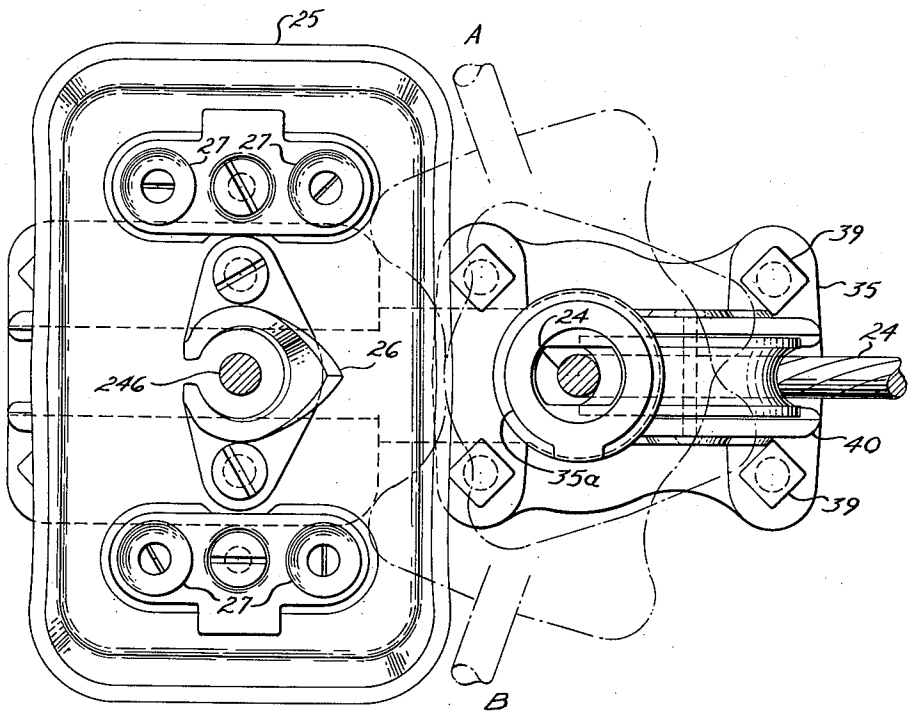


Fig. 3

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2,923,515

LOWERING HANGER WITH MECHANICAL ADVANTAGE

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Application January 3, 1956, Serial No. 557,031

14 Claims. (Cl. 248—321)

This invention relates to improvements in disconnecting and lowering lamp-hanger construction.

An object of the present invention is to provide improvements in the combination of a fixed hanger and a lowering hanger member which carries an electrical device which is adapted to be raised and lowered beneath the fixed hanger. In the present embodiment a luminaire weighing in the neighborhood of 60 to 150 pounds is used as an example. Our improvement provides a mechanical advantage for assisting in the hanger raising and lowering operation.

Another object of the present invention is to provide an improved sheave and cable arrangement whereby the lamp hanger raising and lowering operation is greatly facilitated.

Another object of the present invention is to provide an improved means operable from a location removed from the fixed hanger member, for lowering and raising the lowering hanger member by means of a cable or chain which is supported by means of sheaves, which are disposed in a unique manner on the lamp hangers.

Still another object of the present invention is to provide novel guide means for raising and lowering a lowering hanger member which is supported from a fixed hanger member.

Another object of the present invention is to provide a lowering hanger construction characterized by its structural simplicity, the ease of assembly of its parts, its strong and sturdy nature and its lower manufacturing cost. Other features of this invention reside in the arrangement and design of the parts for carrying out their appropriate functions.

Further objects of the present invention and certain practical advantages will be referred to in, or will be evident from, the following description of one embodiment of the invention, as illustrated in the accompanying drawings, in which:

Fig. 1 is a diagrammatic side elevational view of the device with the lowering lamp-hanger in a partly lowered position.

Fig. 2 is an enlarged cross sectional view taken through the fixed hanger and lowering hanger members and showing the details of their construction.

Fig. 3 is an enlarged transverse sectional view taken along the plane of line 3—3 of Fig. 2.

Before describing in detail the herein illustrated embodiments of the invention, it is to be understood that the present invention is not limited to the structural details or the particular arrangement of the parts herein shown as the devices embodying the present invention may take other forms. It also is to be understood that the phraseology and terminology herein used are for purposes of description and not of limitation, as the scope of the present invention is denoted by the appended claims.

The structure shown in the present embodiment of the invention comprises a fixed hanger member **10** generally mounted at some elevated point in a building or on a

supporting structure of some short, often by means of a bracket or other suitable base **11** connected to a roof beam **13**, or by any suitable support.

As seen in Figs. 2 and 3, the fixed hanger member comprises a main hanger flange member **20** which is provided with a threaded recess which adjustably receives the lower end of threaded member **18**, which in turn is here a part of an adjustable angle fitting **17**, **18**, **19** so as to provide therewith a universal joint and clamping means. The hanger flange member **20** is provided with a horizontally extending portion **20***a* which supports a suitable sheave housing **21**. The sheave housing **21** is rigidly secured to the portion **20***a* by means of bolts **22**. Journalled within the housing **21** is a rotatable sheave **23** over which travels a chain or cable **24** or other flexible tension element, one end of which is attached to the lowering lamp-hanger **12**, later to be described. Secured to a base flange **21***a* of the sheave housing **21** by means of suitable bolts or screws, not herein shown, is a canopy member **25** of any suitable design having a depending generally rectangular skirt portion. The bottom of the canopy **25** is open. Arranged within the canopy member and secured substantially centrally therein by any suitable means is a depending hollow guide tube **26**, the purpose of which will later appear and the details of which may be constructed in accordance with the patents to Farrington 2,403,355 or 2,377,871. Also arranged within the canopy member **25**, adjacent the central axis thereof, which is defined by the guide sleeve **26**, are two suitable electrical contact assemblies **27** disposed on opposite sides of the guide tube **26**. The contacts may be of any usual type and include a depending bell-haped metallic socket, which is carried by a suitable insulator which is in turn secured to the top portion of the canopy member **25** by any suitable means. Each of the contact assemblies is connected to an incoming electrical wire which enters the canpoy member through an aperture member **28** provided in the sheave housing **21** or in any other suitable manner.

As viewed in Fig. 2, the outer left side face of the canopy member **25** is provided with an idler sheave **30**. The idler sheave **30** is supported within a housing **31** provided with suitable ears **31***a* through which securing screws **32** pass for the purpose of holding the housing in position on the canopy **25**. A shaft **33** having its end suitably supported in the side walls of the housing **31** rotatably supports the idler sheave within the housing **31**.

The hanger flange member **20** is provided with a portion **20***b* which extends to the right as viewed in Fig. 2 and supports a swivel-mounted pulley shroud **35** in a position so as not to interfere with the sheave housing **21** or canopy member **25**. The swivel housing **35** is provided with a bracket member **36** containing an enlarged aperture **36***a* which freely receives the head of a bolt **37**. The bolt **37** projects through the extended portion **20***b* of hanger flange member **20** and is secured thereto by means of nut **38**. It will be noted that the extended portion **20***b* of hanger flange member **20** is provided with a tapered frusto-conical recess **20***c* which snugly receives a tapered shoulder portion **36***b* which extends upwardly from the top of bracket member **36**. The swivel housing **35** is rigidly secured to the bracket member **36** by means of bolts **39**. The tapered portions **20***c* and **36***b* provide for self-alignment between the swivel housing **35** and the extended portion **20***b* during assembly. Furthermore, it assures a very tight fit between these two parts upon tightening nut **38** upon bolt **37**. The sheave housing **35** after adjustment is locked in place by tightening nut **38** upon bolt **37**. The housing **35** may be adjusted radially about bolt **37** so that cable **24** may extend to the right in Figs. 2 and 3 in various directions. The swivel hous-

ing 35 includes a pair of side walls between which is rotatably journalled a sheave 40. The lower end of the housing tapers into a tube-like portion 35*a* having an open lower end which guides the cable. This swivel mounting also permits hanger member 10 to be adjusted through a wide range by bolt 19 and threaded member 18 without requiring relocation of pulley 67 and without altering the many advantages obtained by cable runs 24*a*, 24*b*, and 24*c*, etc.

As seen in Fig. 3, the swivel housing 35 may be pivoted about the bolt 37 from the dot-dash position A to the dot-dash position B. The angle subtended by this arc being substantially greater than 180 degrees. An important feature of the invention is the location of the sheave 40 so that the inner side of its groove is in tangential alignment with the pulley-contacting edge of cable run 24*b* and the axis of bolt 37 is substantially in vertical alignment with the center of the cable run 24*b* extending toward lowering member 12. Thus, the depending portion 24*b* of the cable 24 is always in vertical alignment with the bolt 37 regardless of the angular direction taken by its horizontal outlet as it leaves sheave 40. This construction also assures that the three vertically depending strands or cable runs 24*a*, 24*b* and 24*c* of cable 24 lie in substantially the same vertical plane.

It will be noted that the right circumferential trough of sheave 23 is in vertical tangential alignment with the center of guide tube 26. As previously stated, the guide tube 26 locates the assembly axis, generally centrally located, of the fixed hanger member 10. The idler sheave 30 is disposed to the left of sheave 23, as viewed in Fig. 2, and provides a suitable support for the cable 24 prior to travelling over sheave 23. As the cable 24 leaves sheave 23, it is seen to depend through the guide tube 26 along the assembly axis of the fixed hanger member 10.

The lowering hanger member 12 includes an elongated trough-like member having an open upper face. The trough-like member forms a housing 45 within which are rotatably mounted two sheaves 46 and 47. The sheaves 46 and 47 are journalled for rotation upon suitable axes provided by pins 48 and 49 respectively which are supported between the side walls of the housing 45. Located centrally between the ends of the housing 45 is an upstanding, vertically disposed, tubular stem 50. The upper end of this stem is rounded to facilitate its entrance into the guide tube 26 of the fixed upper hanger member. The stem 50 is part of the lowering hanger member which includes a cylindrical housing 51 which supports the stem and also supports diametrically opposed contact members 52, constructed for cooperation with a like number of contact assemblies 27 of the fixed hanger structure when the lowering hanger member is raised and latched to the fixed member. This latching occurs by dog 50*a* engaging in notch 26*a* of stem guide 26. The wires for energizing the lamp or other electrical device 58 are attached to binding posts 52*a* which are electrically connected to contacts 52. The entire stem, guide and contact assembly may be constructed in accordance with the teachings of the patent to Thompson 1,858,908 or in any other suitable manner. The sheaves 46 and 47 are spaced an equal distance from the central or assembly axis of the lowering hanger member 12, as defined by the upwardly projecting stem, and are also disposed on opposite sides of said central axis. It will be understood that the assembly axes of the upper and lower hanger members 10 and 12 respectively coincide in vertical alignment with one another and form approximately the central axis for the entire hanger assembly.

A loop 55 having a central opening may be provided on the bottom surface of the housing 45, in alignment with the central axis of member 12 and housing 45. A suitable lamp fixture 58 or a chandelier, or any attachment for an electrical device may be supported from said loop as indicated in dot-dash lines in Fig. 1 to form with

member 12 a lowering unit. A pair of identical hook members 56 and 57 are provided at each end of the housing 45 on the outer walls thereof and are positioned an equal distance from the central axis of the housing so as to provide means upon which a lamp fixture 58 may be attached, as seen in Figs. 1 and 2, by chain or cable members 60 and 61 which are connected to the hook members 56 and 57 respectively. A safety latch 62 is provided for each hook member and is so constructed as to permit the safety latch member to swing inwardly toward the housing 45 but not outwardly. Thus, one link of the chain 60 and 61 may be quickly inserted upon its respective hook member but cannot be accidentally displaced in the presence of the safety latch member.

The lowering hanger member is raised or lowered by means of cable 24 which may also be constructed of a suitable chain or other flexible tension member but for brevity it is hereafter referred to in the specification and claims as a cable. It will be noted that the lowering hanger member is suspended from one end of the cable by the run 24*c* closest to this end which enters the upstanding stem member 50 and is secured therein by means of a suitable swivel collar 65 at its lower end to prevent axial movement therebetween by the pull type raising force while permitting pivotal movement about the axis of run 24*c*. This swivel collar allows the cable to twist relative to stem 50 so as to relieve twisting strains in the cable. Unless such twisting strains are relieved, the entire lowerable portion of the hanger would have a tendency to twist about the central cable strand 24*c*. The cable passes upwardly through the hollow, central passageway of guide sleeve 26, around sheave 23 and then downwardly around the outer side of idler sheave 30, below the idler sheaves 46 and 47 of the lowering hanger member and upwardly through tube portion 35*a* and around swivel sheave 40 and then to the right as viewed in Figs. 1 and 2 where it may be fastened to a wall or other suitable hook. As seen in Fig. 1, another sheave 67 is mounted on the wall 68. The free end of the cable depends from the sheave 67, within easy reach of an operator standing on the ground or floor.

As heretofore stated, sheave member 23 has its right circumferential edge in tangential alignment with the assembly axis of the fixed and lowering hanger members and with the central axis of the lowering hanger member so that the cable 24 extends downwardly along said central axis and supports the upstanding stem 50 of the lowering hanger member 12 in axial alignment with the passageway of guide tube 26. Thus, during the raising operation, the stem portion 50 will always be brought into engagement with the guide tube 26.

For purposes of assuring that the lowering hanger member will be maintained in a substantially horizontal position during the raising and lowering operation, the sheaves 46 and 47 contained in the housing 45 are spaced equidistant on opposite sides of the central axis so that a three-point support is provided for lowering member 13, namely, the engagement of cable 24 with each sheave 46 and 47 and with the upstanding stem 50. In the preferred construction, the spacing between the vertically extending strands 24*a* and 24*b* of cable 24 as provided by the idler sheave 30, swivel sheave 40 and the central axis, are equal so as to have their intersections with any horizontal plane arranged symmetrically in said horizontal plane about run 24*c* with corresponding points in said horizontal plane located equidistant from said run 24*c*. Hence, these runs or strands exert equal and opposite turning moments (force times distance) about the center of gravity of both member 12 and the lowering unit including member 12 and fixture 58. Since both this member and this unit are symmetrical, the center of gravity of each is along the same vertical line coinciding with the central axis of member 12. Since run 24*c* coincides with this line, it does not tilt member

12. This insures that stem 50 will hang directly under guide 26. The spacing between the idler sheaves 30, 40 and the central axis need not be equal to the spacing between sheaves 46, 47 and the central axis.

An additional advantage is provided by the present construction. It will be readily understood that rotation of the lowering hanger member 12 would occur if the lowering hanger member 12 were suspended from the fixed hanger member 10 by means of a single strand of cable. Rotation of the lowering hanger member 12 is prevented by providing a plurality of three spaced strands 24*a*, 24*b* and 24*c* which lie in substantially the same vertical plane and thereby prevent rotation of the lowering hanger member 12 with respect to the fixed hanger member. Also, this plane coincides with the lengthwise dimensions of member 12 and fixture 58 to provide a compact construction. Also, these cable strands keep member 12 in the same angular relation to member 10 about a vertical axis regardless of the relative position between member 10 and base 13 so that members 10 and 12 will always properly assemble. Also, these strands will keep members 26 and 50 in axial relationship and properly laterally aligned so members 10 and 12 can be assembled.

The present construction, due to the plurality of vertically extending strands or loops provided in the cable 24 as it travels about the various sheaves and the location of the various sheave members, provides a great mechanical advantage over the cable supports and hangers of the past. In the embodiment shown, a pull of 35 to 40 pounds at 70 will raise a fixture 58 weighing 100 pounds or slightly more. The three cable runs provide a mechanical advantage of three.

It should be obvious from the above description that an operator standing at a level below the lamp hanger may by manipulating cable 24 lower the lowering hanger member 12 and its associated lamp fixture 58 for repairs or maintenance very quickly and easily with no fear of the lowering hanger member tilting or in any way becoming disengaged from the fixed hanger member. It will be understood that the lowering hanger member may be also quickly and easily raised with the assurance that the upstanding stem 50 will in each case enter into engagement with the guide tube 26 while simultaneously the upper and lower electrical contacts also enter into engagement.

It will be noted in Fig. 2 that the fixture 20 is threaded on the member 18 as indicated at 18*a*. This permits the member 20 to be oriented in any direction desired at the time the parts are screwed together. A set screw is indicated at 71 for the purpose of holding the member 20 oriented with respect to the member 18 in any position desired. This orientation of the member 20 fixes the position of the supporting cables 24*a* and 24*b* and also fixes the position of the hooks 56 and 57 which determine the orientation of the luminaire 58. This adjustment also permits adjusting the axis of tube 26 into a vertical position, regardless of the orientation of base 11, so that stem 50 will properly coact therewith. Thus, by setting the set screw 71 in the desired position, the axial orientation of the hooks 56 and 57, and therefore the orientation of the longer dimension of the luminaire 58, is possible. This is desirable when fixing the position of a single luminaire running endwise of an aisle or other similar situation. It is even more desirable where two of the fixtures herein described are positioned side by side to hold a very long luminaire which is too heavy for one person to handle utilizing a single cable 24. In such a case, we propose to utilize two of the fixtures herein described in a side by side position with two of the housings 45 suspended therebeneath and suitably connected by chains or cables 60, 61 to the long luminaire. In such a situation, it is obvious that the members 20, supporting the two separate units, must be oriented so as to both extend along the longer axis of the luminaire.

In view of the foregoing description, taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation and advantages of the present device will be quite apparent to those skilled in this art.

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

1. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member, guide means provided on each of said members adapted to center the two hanger members along a central axis of said lowering hanger member, a plurality of spaced sheaves carried by said fixed hanger member, one of said sheaves being in tangential alignment with said central axis, a pair of sheaves rotatably mounted on said lowering hanger member in spaced horizontal alignment, said sheaves on said lowering hanger member being spaced equidistant from said central axis on opposite sides thereof, a cable traveling about said sheaves to provide relative movement for said lowering hanger member, said cable being fixed against axial movement in the raising direction in said guide means of said lowering hanger member on said central axis then passing in turn over (1) said sheave in tangential alignment with said central axis as a central cable run, (2) one of said spaced sheaves on said fixed hanger member, (3) said pair of sheaves on said lowering member, and (4) the other of said spaced sheaves on said fixed hanger member, and means on said lowering hanger member balanced about said central axis for attachment of a lamp fixture to said lowering hanger member.

2. The combination of claim 1 wherein the runs of said cable passing over said spaced sheaves on said fixed hanger member are approximately equidistant from said central axis and central cable run but on opposite sides thereof, and the runs of said cable passing over said pair of sheaves on said lowering member are approximately equidistant from said central axis and central cable run but on opposite sides thereof.

3. The combination of claim 2 wherein said other of said spaced sheaves on said fixed hanger member is connected by a swivel mounting to said fixed member.

4. The combination of claim 3 wherein said swivel mounting includes complementary interfitting tapered projection and recess parts, one part connected with said fixed hanger member and the other part connected with said other of said spaced sheaves, and means for holding said parts tightly engaged in any radially adjusted position.

5. Suspension means, as set forth in claim 1, with the connection wherein said cable is fixed against axial movement in the raising direction to said lowering hanger member being a swivel permitting free rotational movement of said cable about said axis relative to said lowering hanger member to relieve twisting forces in said cable tending to rotate said lowering hanger member about said axis.

6. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member and having a center of gravity, sheaves for said fixed hanger member and said lowerable hanger member, a flexible tension element traveling over said sheaves, and means operatively connecting said sheaves rotatably to said members and said flexible tension element over said sheaves so that said tension element provides a plurality of runs connecting said members with at least one end operatively connected to one of said members and with the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position, said one end being connected to said one member by a swivel con-

nection preventing axial movement therebetween by the pull type raising force while permitting relatively free pivotal movement about the axis of the run closest to said one end to relieve any twisting force in said flexible tension element, said axis extending through said center of gravity, whereby the lowering hanger member will resist twisting about a vertical axis relative to said fixed member.

7. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member and having a center of gravity, sheaves for said fixed hanger member and said lowerable hanger member, a flexible tension element traveling over said sheaves, and means operatively connecting said sheaves rotatably to said members and said flexible tension element over said sheaves so that said tension element provides a plurality of runs connecting said members with at least one end operatively connected to one of said members and with the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position and so that equal and opposite turning moments are exerted on said lowering member by said runs about said center of gravity during raising or lowering of said lowering member, one of said runs closest to said one connected end approximately coinciding with a vertical line through said center of gravity and passing over one of said sheaves on said fixed member having a tangent approximately coinciding with said line, the remainder of said runs being of even number and having their intersections with any horizontal plane arranged symmetrically in said horizontal plane about said line with correspondingly symmetrical points in said horizontal plane located equidistant from said line, said one end being connected to said one member by a swivel connection preventing axial movement therebetween by the pull type raising force while permitting pivotal movement about an axis similarly oriented to said line to relieve any twisting force in said flexible tension element, whereby the lowering hanger member will resist twisting about a horizontal axis or rotating about a vertical axis relative to said fixed member.

8. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member, sheaves for said fixed hanger member and said lowerable hanger member, a flexible tension element traveling over said sheaves, and means operatively connecting said sheaves rotatably to said members and said flexible tension element over said sheaves to provide a plurality of horizontally spaced apart vertical runs between said members to prevent relative rotation between said members about a vertical axis and with at least one end operatively connected to one of said members and with the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position, said connecting means including a swivel mounting operatively connecting the sheave closest said other end to said fixed member for pivoting about an axis coinciding with one of said vertical runs extending from said last mentioned sheave remote from said other end toward said lowerable member, whereby said other end may be swung through a large horizontal arc around said last mentioned run without rotating said lowering hanger member about a vertical axis relative to said fixed member.

9. In combination, a base adapted to be secured to a ceiling, a fixed hanger member, universal joint and clamp means operatively connecting said base and fixed hanger member together to change the orientation between them and clamp them in any position, a lowering hanger member separably mounted on said fixed hanger member, said members having coacting telescopic guide and centering means adapted to coact along a generally vertical assembly axis during assembly with said universal joint and clamp means permitting vertical orientation of the assembly axis of said fixed hanger member independently of the orientation of said base, sheaves for said fixed hanger member and said lowerable hanger member, a flexible tension element traveling over said sheaves, and means operatively connecting said sheaves rotatably to said members and to said flexible tension element to provide a plurality of horizontally spaced apart vertically extending runs between said members with at least one end operatively connected to one of said members and with the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position, whereby said fixed member may be adjusted through a substantial range with respect to said base so that said guide and centering means will properly coact regardless of the orientation of said ceiling and said lowering hanger member will remain in the same angular relation about a vertical axis relative to said fixed member in all adjustments while said runs will keep said guide and centering means properly laterally aligned.

10. In combination, a base adapted to be secured to a ceiling, a fixed hanger member, universal joint and clamp means operatively connecting said base and fixed hanger member together to change the orientation between them and clamp them in any position, a lowering hanger member separably mounted on said fixed hanger member, said members having coacting guide and centering means adapted to coact during assembly, a lamp fixture secured to said lowering hanger member to form therewith a lowering unit with a center of gravity, at least two sheaves for said fixed hanger member, at least two sheaves for said lowerable hanger member, a flexible tension element traveling over said sheaves, and means operatively connecting said sheaves rotatably to said members and said flexible tension element over said sheaves so that said tension element provides at least three runs horizontally spaced apart connecting said members with at least one end operatively connected to said lowerable member and with the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering unit in any lowered position and so that equal and opposite turning moments are exerted on said lowering unit by said runs about said center of gravity during raising or lowering of said lowering unit, the run closet to said one connected end approximately coinciding with a vertical line through said center of gravity and passing over one of said sheaves on said fixed member having a tangent approximately coinciding with said line, the remainder of said runs being of even number and having their intersections with any horizontal plane arranged symmetrically in said horizontal plane about said line with correspondingly symmetrical points in said horizontal plane located equidistant from said line, said lowerable end being connected to said one member by a swivel connection preventing axial movement therebetween by the pull type raising force while permitting pivotal movement about an axis similarly oriented to said line of the run closest to said one end to relieve any twisting force in said flexible tension element, said runs being three in number and located in a common plane coinciding with the lengthwise dimension of said lowering unit to provide a compact construction, said connecting means including a swivel mounting operatively connecting the sheave closest said other end to said fixed member for pivoting about an axis coinciding with the run extending from said last mentioned sheave remote from said other end toward said lowerable member, said swivel mounting including complementary interfitting tapered projection

and recess parts coaxial with said axis with one part connected to said fixed hanger member and the other to said last mentioned sheave and including means for holding said parts tightly engaged in any radially adjusted position about said axis, whereby a mechanical advantage of three is obtained by pulling said other end, said other end may be swung through a large horizontal arc around said line, the lowering unit will resist tilting about a horizontal axis, said fixed member may be adjusted through a substantial range with respect to said base without requiring adjustment of said other end relative to said base and so that said guide and centering means will properly coact, and said lowering hanger member will remain in the same angular relation about a vertical axis relative to said fixed member in all adjustments while said runs will keep said guide and centering means properly laterally aligned.

11. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member, a sheave for said fixed hanger member, a flexible tension element traveling over said sheave and operatively connected to said lowerable member on one side of said sheave and having a free end on the other side of said sheave adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position, and a swivel mounting means operatively connecting said sheave to said fixed member for pivoting about an axis coinciding with the run extending from said sheave remote from said free end toward said lowerable member so that said free end may be swung through a large horizontal arc around said run, said swivel mounting means including complementary interfitting tapered projecton and recess parts coaxial with said axis with one part connected to said fixed hanger member and the other to said sheave and including means for holding said parts tightly engaged in any radially adjusted position about said axis.

12. Suspension means for lamp hangers, comprising a fixed hanger member, a lowering hanger member separably mounted on said fixed hanger member, a sheave for said fixed hanger member, a flexible tension element traveling over said sheave and operatively connected to said lowerable member on one side of said sheave and having a free end on the other side of said sheave adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position, a swivel mounting operatively connecting said sheave to said fixed member for pivoting about an axis coinciding with the run extending from said last mentioned sheave remote from said free end toward said lowerable member, and means operatively connecting said members and including said run for preventing relative rotation of said members about a vertical axis so that said free end may be swung through a large horizontal arc around said run and said lowering hanger member will not rotate about a vertical axis relative to said fixed member.

13. Suspension means for lamp hangers, comprising a base adapted to be secured to a ceiling, a fixed hanger member, joint and clamp means operatively connecting said base and fixed hanger member together for relative movement about a horizontal axis and a vertical axis so that the orientation between them may be changed about either or both of these axes and they may be clamped in any position, a lowering hanger member separably mounted on said fixed hanger member, a sheave for said fixed hanger member, a flexible tension element traveling over said sheave, means operatively connecting said sheave rotatably to said fixed hanger member and to said flexible tension element with said tension element having one end operatively connected to said lowerable member and the other end adapted to be pulled in or released to provide relative vertical movement between said fixed and movable hanger members while supporting said lowering hanger member in any lowered position so that relative rotation of said members about a vertical axis is prevented, said connecting means including a swivel mounting operatively connecting said sheave to said fixed member for pivoting about an axis coinciding with the run extending from said sheave remote from said other end toward said lowerable member so that said fixed member may be adjusted through a substantial range with respect to said base without requiring adjustment of said other end relative to said base.

14. Suspension means, as set forth in claim 11, with said last mentioned means including a threaded stem on said projection part extending through said recess part with its threads located on the opposite side of said recess part from the tapered interfit of said parts, and including a nut on said threads for pulling said parts into tight interfitting engagement.

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