June 4, 1968 F. K. WEBER ET AL 3,387,129

CHANDELIER ARM SPLIT LONGITUDINALLY TO FORM TWO MATING PIECES

Filed Feb. 23, 1967 4 Sheets-Sheet 1

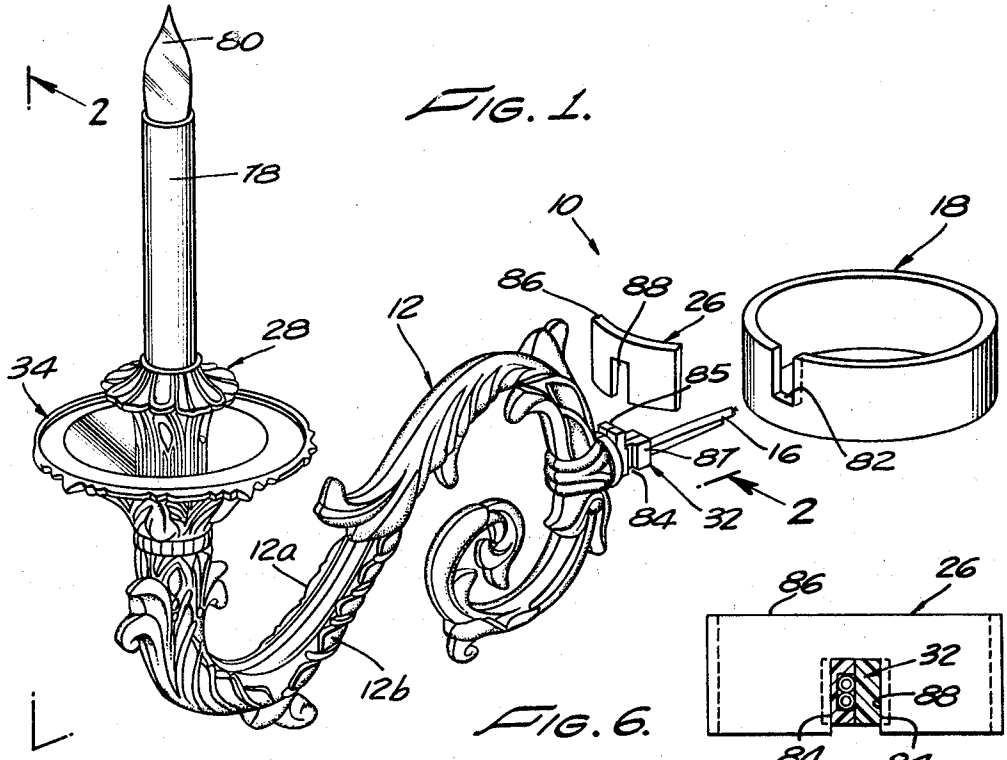


FIG. 1.

FIG. 6.

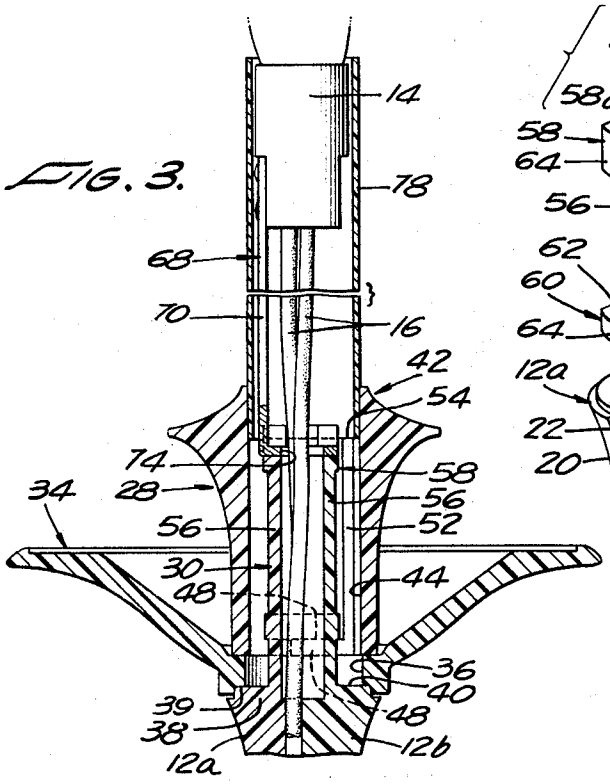


FIG. 3.

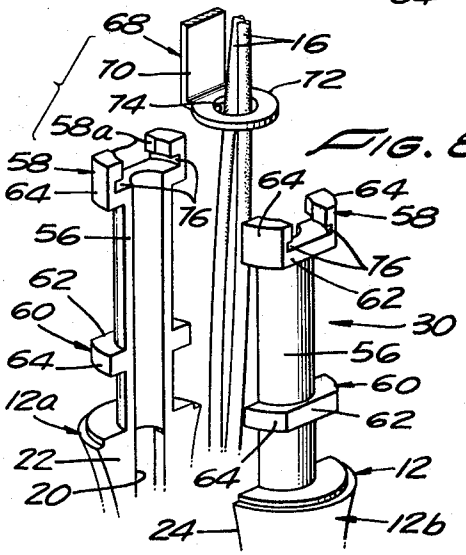


FIG. 8.

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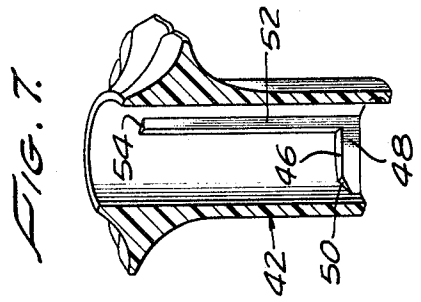


FIG. 7.

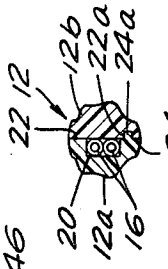


FIG. 5.

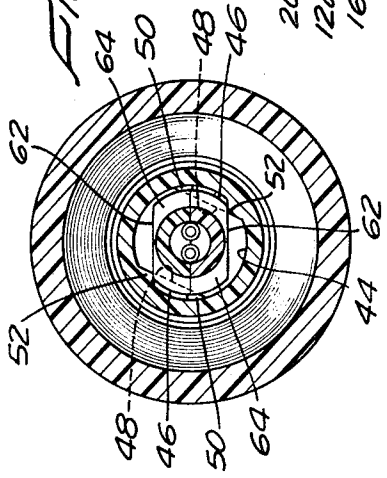


FIG. 4.

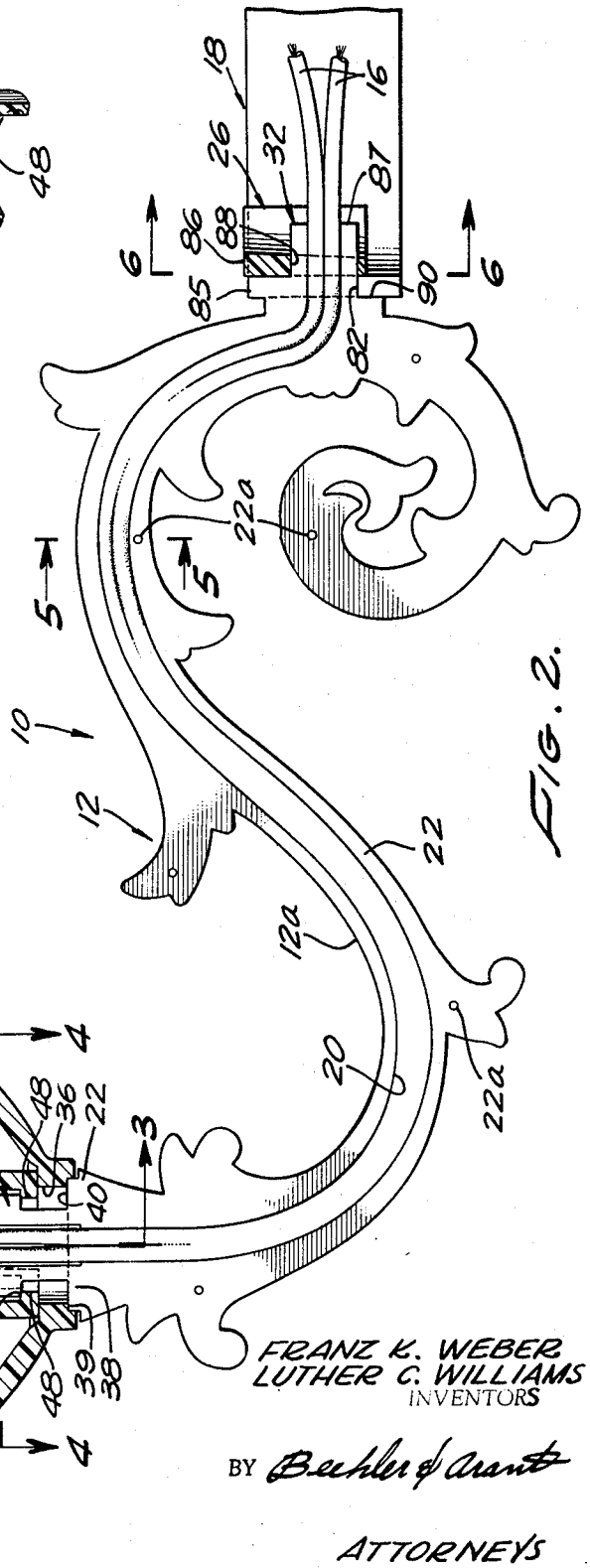


FIG. 2.

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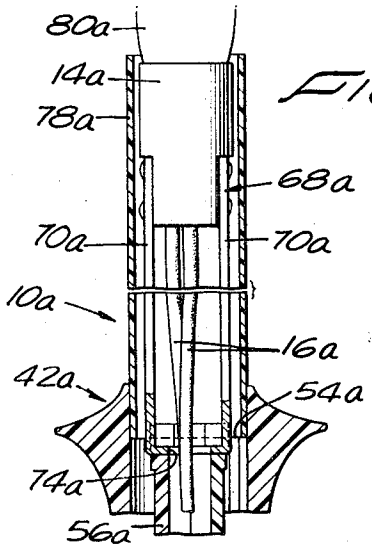
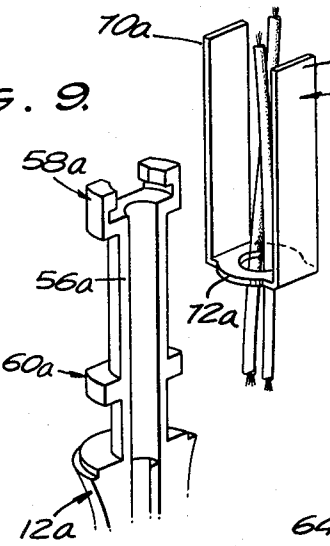


FIG. 9.



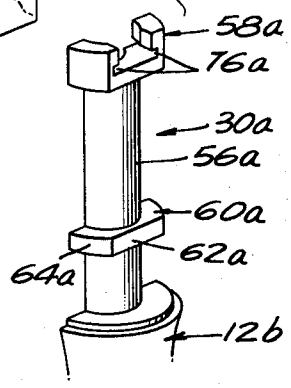


FIG. 10.

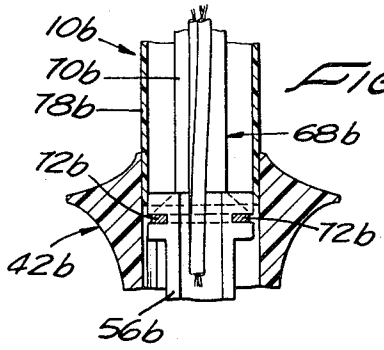


FIG. 11.

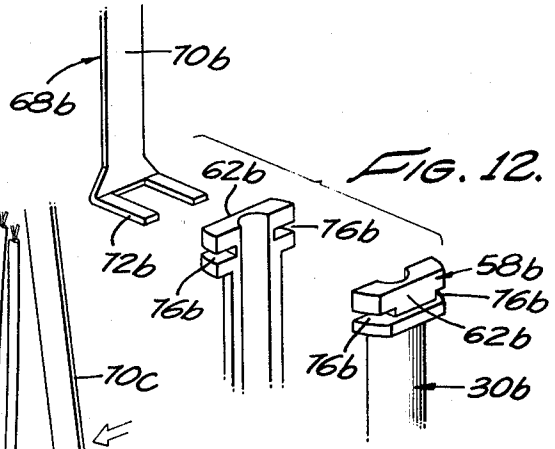


FIG. 12.

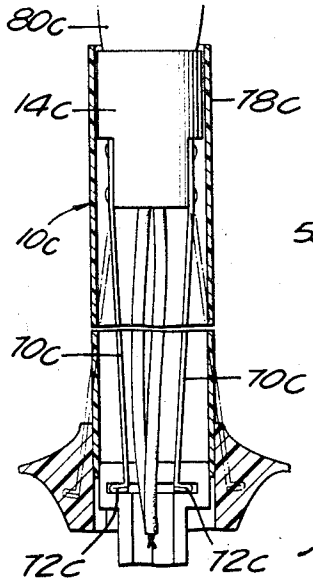


FIG. 13.

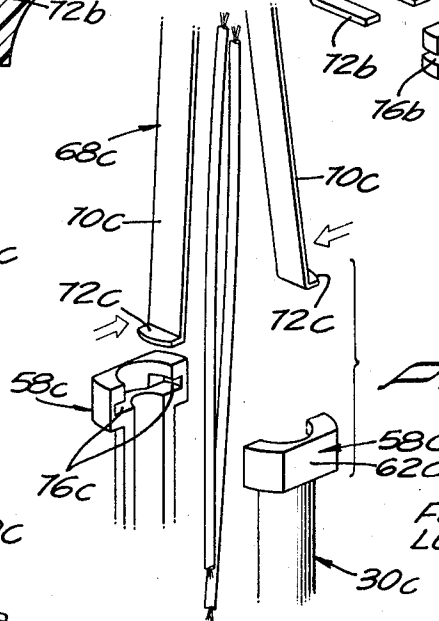


FIG. 14.

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June 4, 1968 F. K. WEBER ETAL 3,387,129

CHANDELIER ARM SPLIT LONGITUDINALLY TO FORM TWO MATING PIECES

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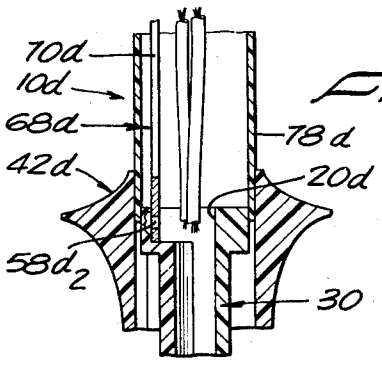


FIG. 15.

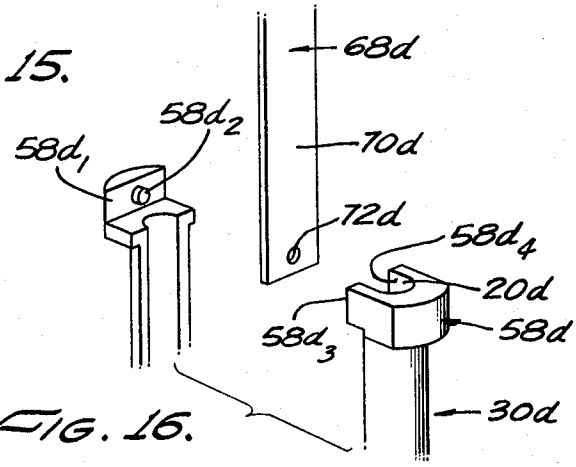


FIG. 16.

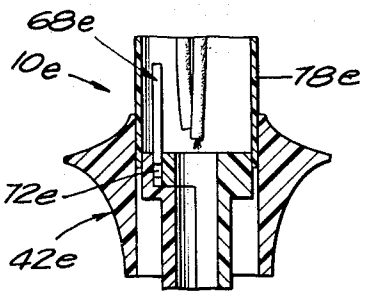


FIG. 17.

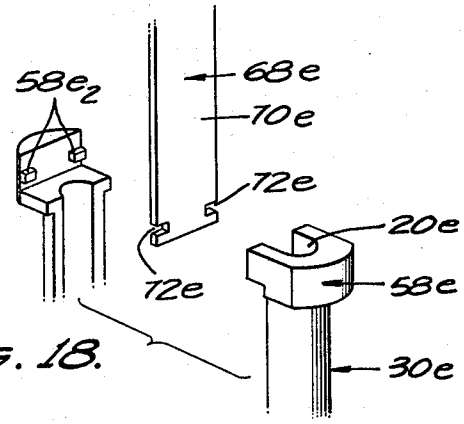


FIG. 18.

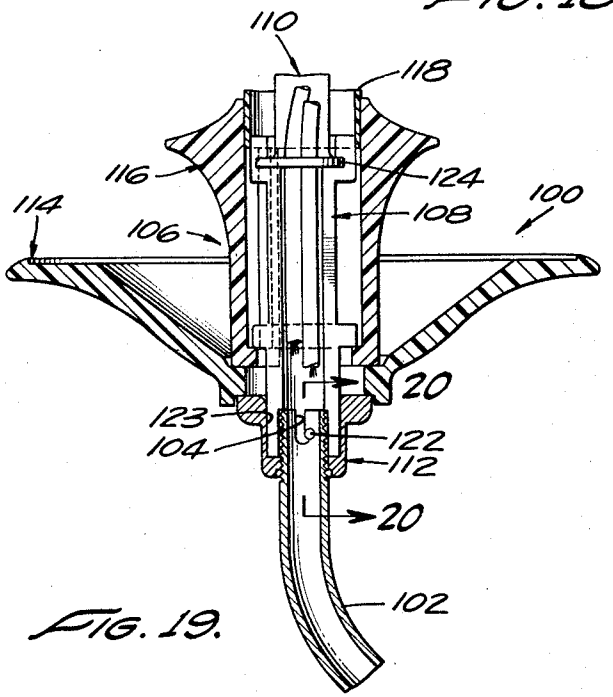


FIG. 19.

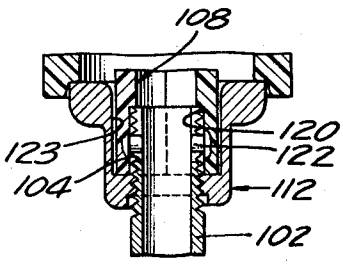


FIG. 20.

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United States Patent Office

3,387,129

Patented June 4, 1968

3,387,129

CHANDELIER ARM SPLIT LONGITUDINALLY TO FORM TWO MATING PIECES

Franz K. Weber, Eagle Rock, and Luther C. Williams, Glendale, Calif., assignors, by direct and mesne assignments, to Beehler & Arant, Los Angeles, Calif., a partnership

Filed Feb. 23, 1967, Ser. No. 618,179
26 Claims. (Cl. 240—78)

ABSTRACT OF THE DISCLOSURE

A chandelier arm split along its length into two mating halves, each of which is injection molded from plastic material, the two halves of the arm cooperatively defining an internal passage for containing concealed wires; lock means for locking the inner end of the chandelier arm to the central body portion of a chandelier, and including a movable lock member which provides a cam action for locking the chandelier arm both axially and rotationally; a lamp holder having its lower end removably inserted between the outer ends of the chandelier arm halves; and cam-acting lock means securing the outer ends of the chandelier arm halves together and at the same time securing the lamp holder against either axial or rotational movement.

Background of the invention

The present invention relates to electrical lighting fixtures having improved features of mechanical construction.

Lighting fixtures in general, and chandeliers in particular, have heretofore been manufactured primarily from metal, by manufacturing processes in which die-casting, sand casting, bending, and machining of the parts have been combined in a long succession of steps which has been both time consuming and expensive. Furthermore, the assembly of a single chandelier on a job site, prior to its installation, has generally required from 20 minutes to 40 minutes of hand labor by a person specially trained in that work.

The heretofore conventional chandeliers have generally been of very heavy construction, and their great weight has created an unnecessary hazard in the event of earthquake, fire, and the like, where chandeliers have fallen.

The heretofore conventional lighting fixtures, including chandeliers, have utilized screw-threaded connections for holding the various portions of the fixture or chandelier together. The amount of tightening required when assembling the screw-threaded connections has not been established objectively, but rather has been established subjectively as a matter of personal taste or judgment on the part of the assembler. As a result, the mechanical alignment and hence the artistic appearance of the fully assembled fixtures or chandeliers has varied in accordance with that judgment factor. Furthermore, the screw-threaded connections have been inherently susceptible to becoming loosened, either during shipment of the fixtures, or during replacement of light bulbs or the like. The twisting or loosening of the screw-threaded connections has created a safety problem because of the twisting of the wires inside the fixture, and the resulting probability of electrical short circuit has been enhanced by the metal construction of the interior portions of the light fixtures.

Summary of the invention

According to the present invention a light fixture body is formed in at least two longitudinal sections, with a passageway being formed in the inner surface of at least one of the body sections and extending throughout the length of the body for carrying the necessary concealed wires. Locking means are provided for locking the body sections together, and at the same time locking the ends of the fixture body to other fixture members into which the wires extend.

The locking means does not include a screw-threaded connection, but does include a movable locking member which cooperates with the end of the fixture body, and with the associated fixture member, for providing a cam operation to achieve the desired locking action. The locking action is such as to preclude relative movement between the fixture member and the fixture body of either an axial or rotatable nature. There is no direct action of the locking means upon the concealed wires, and as a result, the wires are securely housed both in the fixture body and in the fixture member.

The illustrated principal embodiment of the invention includes a horizontal chandelier arm whose inner end is locked to the central body portion of a chandelier, and whose outer end receives a lamp holder. Separate locking means are provided at the inner and outer ends of the chandelier arm, and their general operation is the same, but they differ in specific details.

The locking means at the outer end of the chandelier arm is arranged as follows. The lower extremity of the lamp holder is inserted between the ends of the fixture body sections, the size and configurations of the parts being such that when interengaged and locked together, the lamp holder is then supported rigidly and cannot move either axially or rotatably. The locking means includes a relatively stationary locking member which artistically simulates a conventional bobeche, and a movable locking member which artistically simulates a conventional candle holder. The lamp holder projects through the candle holder, and rotational movement of the candle holder is employed for achieving a cam action which exerts force in an axial direction upon the bobeche to thereby rigidly lock the entire assembly.

At the inner end of the chandelier arm the ring of the chandelier body has an opening into which the chandelier arm is inserted. The movable locking member is a generally U-shaped device which is slidably inserted over the end of the fixture body (chandelier arm) inside the chandelier ring, and provides a cam action between lugs on the fixture body end and the inner surface of the ring. The cam action is such as to create a thrust in the axial direction and thereby tightly lock the chandelier arm and prevent it from sagging.

According to the preferred practice of the invention the members are locked together in a predetermined relative position. Personal judgment of the assembler does not determine the position. Mechanical rigidity and uniform artistic appearance are therefore assured. Further, the locking action is achieved entirely by the movement of locking members not in engagement with the wires, and does not involve any relative movement of the members within which the wires are captivated. Twisting of the wires is therefore precluded both during and after the assembly process.

A preferred feature of the invention is that the wire passage is formed entirely within the face of one longitudinal section of the fixture body, which greatly facilitates the assembly process. Utilizing this and other features of the invention the labor time for assembling a complete chandelier is reduced to one-quarter or less of what has previously been required.

According to the present invention it is greatly preferred to form all parts of the fixture body, locking means, and associated members from plastic material, by means of injection molding. Almost any highly ornate configuration of the decorative external surfaces may therefore be

achieved. Furthermore, the weight of the parts, the cost of the material from which the parts are fabricated, and the cost of the manufacturing operation itself, are thereby greatly reduced over what has been conventionally known heretofore. At the same time a superior electrical result is achieved, since the exposure of a bare wire to the surrounding frame does not create a short circuit because the frame, being made of plastic material, is itself an excellent electrical insulator.

Drawings summarized

FIGURE 1 is an exploded perspective view of an electrical lighting fixture according to the invention which, in this instance, is a portion of a chandelier;

FIGURE 2 is a section taken on line 2—2 in FIGURE 1;

FIGURE 3 is a section taken on line 3—3 in FIGURE 2;

FIGURE 4 is a section taken on line 4—4 in FIGURE 2;

FIGURE 5 is a section taken on line 5—5 in FIGURE 2;

FIGURE 6 is a section taken on line 6—6 in FIGURE 2;

FIGURE 7 is a fragmentary perspective view of an interior detail of one component of the chandelier arm;

FIGURE 8 is a fragmentary exploded perspective view of the outer extremity of the chandelier arm;

FIGURE 9 is a fragmentary vertical section through the outer extremity of one modified chandelier arm according to the invention;

FIGURE 10 is an exploded perspective view of certain parts of the structure illustrated in FIGURE 9;

FIGURE 11 is a vertical section through the outer extremity of a second modified chandelier arm according to the invention;

FIGURE 12 is a fragmentary exploded perspective view of certain parts of the structure shown in FIGURE 11;

FIGURE 13 is a vertical section through the outer extremity of a third modified chandelier arm according to the invention;

FIGURE 14 is an exploded perspective view of certain parts of the structure shown in FIGURE 13;

FIGURE 15 is a vertical section through the outer extremity of a fourth modified chandelier arm according to the invention;

FIGURE 16 is an exploded perspective view of certain parts of the structure shown in FIGURE 15;

FIGURE 17 is a vertical section through the outer extremity of a fifth modified chandelier arm according to the invention;

FIGURE 18 is an exploded perspective view of certain parts of the structure shown in FIGURE 17;

FIGURE 19 is a vertical section through the outer extremity of a sixth modified chandelier arm according to the invention; and

FIGURE 20 is an enlarged section taken on line 20—20 in FIGURE 19.

Preferred embodiment

Referring now to these drawings, and particularly to FIGURES 1 through 8, there is illustrated the lighting fixture **10** according to the invention including a body **12** mounting a lamp socket **14** and containing wires **16** for conveying electrical current to the socket. While the invention may be utilized to advantage in various types of lighting fixtures it is presently disclosed in connection with its application to chandeliers. The illustrated lighting fixture **10**, for example, constitutes one arm assembly of a chandelier. The body **12** of the illustrated chandelier arm assembly is hereinafter referred to as a chandelier arm or simply an arm. The pendant of the chandelier includes a mounting ring **18** to which the chandelier arm **12** is secured in a manner to be explained presently. The chandelier arm **12** is formed with a central passage **20** to receive the concealed wires **16** and the arm is split into two similar mating halves or sections **12***a* and **12***b* along a normally vertical parting plane which coincides with the plane of symmetry of the arm and interacts the wire passage **20**. When the chandelier arm is assembled, the confronting parting or seating faces **22**, **24** of the mating arm sections **12***a*, **12***b* are disposed in seating contact with one another and the electrical wires **16** are captivated in the passage **20**. The arm sections are releasably retained in assembled relation by inner and outer arm locking means **26**, **28**.

The illustrated chandelier arm **12** has a generally S or scroll shape. A highly important advantage of the invention resides in the fact that the chandelier arm may be economically fabricated with its illustrated ornate shape and embossed surface features by an injection molding process. The arm at its inner end, adjacent the pendant ring **18**, extends downwardly, then curves outwardly and upwardly, and finally curves downwardly again in spiral fashion. The outer end of the arm curves upwardly and terminates in a normally upright spindlelike extension **30**. Projecting inwardly from the inner downturned bend in the arm is a normally horizontal studlike extension **32**. The outer end of the wire passage **20** extends axially through and opens through the upper end of the outer arm extension **30**. The inner end of the passage extends axially through and opens through the inner end of the inner arm extension **32**.

The outer end of the illustrated chandelier arm assembly **10** is intended to simulate a candle and candle holder. To this end, there is removably mounted on the outer end of the fixture arm **12**, at the base of the outer arm extension **30**, a circular ornamental fitting or cup **34** which is commonly referred to in the trade, and is referred to in the ensuing description, as a bobeche. This bobeche has a central lower flanged opening **36** which fits over an upper shouldered end **38** on the arm **12**, at the base of the outer arm extension. The bobeche opening **36** is stepped, as shown, to define a downwardly facing annular shoulder **39** about the opening. Shoulder **39** seats on an annular upwardly presented face **40** on the chandelier arm **12**, surrounding the base of the arm extension **30**. Removably fitted over the arm extension **30**, above the bobeche **34**, is a tubular member or collar **42** which forms part of the outer chandelier arm locking means **28**. This collar is intended to simulate and is hereinafter referred to as a candle holder. The central opening **44** in the candle holder **42** is inwardly stepped at diametrically opposite sides, adjacent the base of the holder, to define a pair of inwardly projecting, diametrically opposed (generally sector-shaped locking shoulders **46** having confronting parallel chord faces **48**. One circumferential end of one locking shoulder and the diametrically opposite circumferential end of the other locking shoulder are beveled to form inclined ramp surfaces **50**. Projecting radially inward from the wall of the candle holder opening **44**, adjacent the opposite ends of the locking shoulders **46**, respectively, are a pair of diametrically opposed stop ribs **52**. These ribs extend upwardly from the locking shoulders, axially of the candle holder **42**, and have their upper ends **54** disposed in a common plane normal to the axis of and located a distance below the upper end of the holder.

The outer extension **30** of the chandelier arm **12** has a generally tubular central portion **56** and a pair of radially projecting shoulders or flanges **58** and **60** spaced axially along the tubular portion. The upper flange **58** is located at the upper extremity of the arm extension **30**, while the lower flange **60** is spaced a distance from the base of the extension and hence from the chandelier arm seating face **40**. As shown best in FIGURE 4, each extension flange **58**, **60** has two diametrically opposite flat and parallel sides **62** and two diametrically opposite circularly curved sides **64** between the flat sides. The two flanges are orientated with their corresponding flat sides

disposed in common planes parallel to the axis of the chandelier arm extension **30** and their corresponding curved sides in common curved planes parallel to the extension axis. The minor dimension of the extension flanges **58**, **60**, that is the flange width measured between and normal to their flat sides **62**, is slightly less than the perpendicular spacing between the flat chord faces **48** of the locking shoulders **46** on the chandle holder **42**. The major dimension of the flanges, that is the flange diameters measured between their curved sides **64**, is such as to provide the extension flanges with a close fit in the candle holder opening **44**. It is evident at this point that the locking shoulders **46** on the candle holder **42** and the flanges **58**, **60** on the outer chandelier arm extension **30** are so constructed as to permit axial insertion of the candle holder over and axial removal of the holder from the extension by rotation of the holder relative to the extension through an angle of about 75° from its position of FIGURE 4. In this rotated position of the candle holder, hereinafter referred to as its unlocked position, the locking shoulders **46** on the holder are axially aligned with the flat sides **62** of the extension flanges **58**, **60** in such a way that the shoulders are disposed to clear the flanges during axial removal and insertion of the candle holder. The candle holder **42** is secured to the chandelier arm extension **30** by sliding the holder downwardly over the extension to its position of FIGURE 2 and then rotating the holder to its position of FIGURE 4. This latter position of the candle holder is hereinafter referred to as its locked position. During rotation of the candle holder to its locked position, the locking shoulders **46** on the holder engage under the rounded sides or ends **64** of the lower arm extension flange **60**, as shown in FIGURE 2, to lock the candle holder against upward movement relative to the chandelier arm extension **30**. The lower extension flange, then, serves as a locking flange.

Referring to FIGURES 2 and 3, it will be seen that the inner rim of the bobeche **34** has an upwardly facing shoulder **66** surrounding the upper end of its opening **36**. This bobeche shoulder seats the lower end of the candle holder **42** when the latter is rotated to its locked position on the chandelier arm extension **30**. The parts are so dimensioned that in this locked position of the candle holder, the inner rim of the bobeche is firmly clamped between the candle holder and the annular seating face **40** on the chandelier arm **12**. The inclined ramp surfaces **50** on the candle holder locking shoulders **46** aid rotation of the holder to its locked position by camming the shoulders under the lower extension locking flange **60**. A thrust is therefore produced in a direction parallel to the axis of concealed wires **16** for locking the entire assembly. Rotation of the candle holder beyond its locked position is prevented by engagement of the holder stop ribs **52** with the flat sides **62** of the extension flanges **58**, **60**.

It is now obvious that the bobeche **34** and the candle holder **42** coact to firmly clamp together the outer extremities of the two mating sections **12***a*, **12***b* of the chandelier arm **12**. At the same time the candle holder and bobeche are themselves rigidly suspended in predetermined positions. The arm sections may be released for separation by removing the bobeche and candle holder from the chandelier arm.

The lamp socket **14** is fixed to the upper end of the supporting bracket **68** comprising a metal strap or arm **70**. The lower end of this arm is bent at right angles to form a tongue **72**. This bracket tongue is generally circular in outline and has a central opening **74**. The upper flange **58** of the chandelier arm extension **30** is axially and radially slotted and formed with internal circular grooves **76**, as shown best in FIGURE 8, for receiving the bracket tongue **72**. The socket mounting bracket **68** is secured to the chandelier arm extension **30** by first removing the bobeche **34** and candle holder **42** to permit separation of the mating arm sections **12***a*, **12***b* in the manner shown in FIGURE 8, sliding the bracket tongue **72** edgewise into the grooves **76** in one arm section, then rejoining this arm section with the other arm section in such a way that the bracket tongue engages in the grooves in the latter arm section, and finally reassembling the bobeche and candle holder on the chandelier arm to clamp the two halves of the upper grooved extension flange **58** about the bracket tongue. The socket mounting bracket **68** is thereby firmly locked to the chandelier arm extension **30**. It is significant to note here that the central openings in the bobeche and candle holder are slightly larger than the lamp socket **14** and its mounting bracket **68**, whereby the bobeche and candle holder may pass over the socket and bracket to accommodate attachment of the bracket to the chandelier arm extension in the manner explained above. It is further significant to note that when the chandelier arm extension flange **58** is clamped about the bracket tongue **72**, the latter is captivated in the flange grooves **76**. The strap **70** of lamp bracket **68** is narrowly confined in slot **58***a* of flange **58** (FIGURE 8) and the lamp bracket is thereby locked against rotation.

When the lamp socket **14** is thus assembled on the chandelier arm **12**, the socket and a major portion of its mounting bracket **68** are exposed above the candle holder **42**. Surrounding the socket and the exposed portion of the bracket is a sleeve **78** which simulates a candle. The lower end of this sleeve, hereinafter referred to in places as a candle sleeve, fits snugly in the upper end of the candle holder opening **44** and rests on the upper edges **54** of the candle holder stop ribs **52**. The upper end of the candle sleeve fits closely about and projects just slightly above the upper end of the lamp socket **14**. Socket **14** is designed to receive a tapered lamp **80** simulating a candle flame. It is now evident, therefore, that the outer extremity of the illustrated chandelier arm assembly **10** simulates a candle supported in a candle holder.

The inner chandelier arm extension **32** comprises a generally square stud whose square base portion **85** is dimensioned to fit slidably within a square vertical slot **82** in the chandelier pendant ring **18** and which projects a distance beyond the inner surface of the ring. Insertion of square base **85** in square slot **82** locks the chandelier arm against rotation. Formed in diametrically opposite sides of the extension **32** are aligned vertical grooves **84** for receiving a curved collar or lock plate **26**. This plate is slotted at **88** to straddle the arm extension **32** in such a way that the slot edges of the plate engage in the extension grooves **84**, thus to firmly join the inner ends of the chandelier arm sections **12***a*, **12***b*. Surrounding the base of the arm extension **32** is an annular shoulder **90** on the chandelier arm **12**. When the chandelier arm is installed in the pendant ring **18**, the arm extension **32** extends through the ring hole **82** to a position wherein the arm shoulder **90** seats against the outer surface of the ring and the extension grooves **84** are exposed at the inside of the ring, just sufficiently to receive the lock plate **26** in such manner that the ring is firmly clamped between the shoulder and plate. Plate **26** tapers to a narrower thickness at its lower extremity, hence its insertion into slots **84** produces a camming action against lugs **87** which in turn creates a thrust in an axial direction, parallel to wires **16**, drawing the chandelier arm tightly into the ring **18** and preventing it from sagging. The chandelier arm is thereby firmly attached to the pendant ring **18**.

As noted earlier, electrical current is conveyed to the lamp socket **14** through the conductor wires **16**. These wires extend from the socket, through the central opening **74** in the tongue **72** of the socket mounting bracket **68** and the wire passage **20** in the chandelier arm **12** to the inner arm extension **32** and then through this extension to the inside of the pendant ring **18**, in the manner best illustrated in FIGURE 2. The wires are thus completely

concealed within the chandelier arm when the latter is assembled. The wires are initially installed in the wire passage **20** by removing the chandelier arm from the pendant ring **18**, removing the bobeche **34**, candle holder **42**, and candle sleeve **78**, and separating the mating arm sections **12***a*, **12***b*. The wire passage **20** is thereby exposed along its entire length to permit easy placement of the wires **16** in the passage. The arm sections **12***a*, **12***b* are then reassembled to conceal and captivate the wires in the passage and the chandelier arm is reinstalled in the pendant ring **18** in the manner explained above. In the preferred form of the invention as presently illustrated the wire passage **20** is contained entirely within the chandelier arm section **12***a*. This eliminates the alignment problems which would otherwise exist if the wire passage were formed partly in one arm section and partly in the other arm section. It is significant to note in this regard that the wire opening in the outer chandelier arm extension **30** is enlarged to communicate with the adjacent, offset end of the wire passage **74**. A number of lugs **24***a* formed on surface **22** of arm section **12***a* are received in recesses **22***a* of surface **24** of arm **12***b*, to facilitate alignment of the two arm sections when assembling them together.

The present lighting fixture or chandelier arm assembly possesses the advantage of being adapted for fabrication by a relatively low cost injection molding technique, whereby the fixture may be formed to the illustrated ornate curvature and may be embossed with highly ornate surface features, as shown, and the additional distinct advantage of having completely concealed wiring. The chandelier arm assembly is also easy to assemble in a minimum amount of time.

Alternate forms

Reference is now made to FIGURES 9 to 20 which illustrate various alternative lighting fixture or chandelier arm assemblies according to the invention. The modified chandelier arm assemblies illustrated in FIGURES 9 through 18 have been shown in fragmentary fashion with the understanding that the remaining, nonillustrated parts of these assemblies are identical to those of the chandelier arm assembly **10** described above.

Thus, the only distinction between the modified chandelier arm assembly **10***a* of FIGURES 9 and 10 and the earlier chandelier arm assembly **10** resides in the socket mounting bracket **68***a* which, in this instance, has a pair of upright socket mounting straps or arms **70***a*. The bracket tongue **72***a* extends between and is joined to the lower ends of these bracket arms. It will be observed, however, that the outer extension **30***a* chandelier arm assembly **10***a* and the maner of attachment of the bracket tongue **72***a* to the extension are the same as described above in connection with the chandelier arm assembly **10**.

In the modified chandelier arm assembly **10***b* of FIGURES 11 and 12, the upper flange **58***b* of the chandelier arm extension **30***b* is externally grooved at **76***b*, and the tongue **72***b* of the lamp socket mounting bracket **68***b* is slotted to straddle and engage in the external grooves of the flange, as shown. The bracket **68***b* is therefore locked against rotation relative to the arm **30***b*. In this instance, the flat sides **62***b* of the extension flange **58***b* are inset slightly above the external flange grooves **76***b* to provide snug clearance between one upper inset flat side and the surrounding candle holder **42***b* for the upright bracket strap or arm **70***b*. This bracket arm seats against the adjacent inset flat side of the flange **58***b* when the fiixture is assembled.

The lamp socket mounting bracket **68***c* of the modified chandelier arm assembly **10***c* shown in FIGURES 13 and 14 has a pair of resilient upright socket supporting straps or arms **70***c*. The lower ends of these bracket arms are bent outwardly to form rounded tongues **72***c*. The bracket arms are biased away from one another, as shown. Upper flange **58***c* of the chandelier arm extension **30***c* has an enlarged axial opening in its upper side and is internally grooved at **76***c*. In this instance, during assembly of the chandelier fixture, the bracket arms **70***c* are forced together and then inserted axially into the open upper end of the chandelier extension flange **58***c*, after which the arms are released to spring outwardly to their positions of FIGURE 13. In these positions, the bracket tongues **72***c* engage in the internal flange grooves **76***c*, as shown. Again, a non-rotating securement of the lamp bracket is achieved.

The modified chandelier arm assembly **10***d* of FIGURES 15 and 16 has a lamp socket mounting bracket **68***d* with a single flat arm **70***d*. Extending through the lower end of this arm is an aperture **72***d*. One half of the upper flange **58***d* of the chandelier arm extension **30***d* defines an upstanding shoulder $58d_1$ which faces inwardly toward and is laterally spaced from the extension axis. Projecting inwardly from the center of this shoulder is a pin $58d_2$. The other half of the extension flange **58***d* defines a shoulder $58d_3$ which faces and is offset toward the extension flange shoulder $58d_1$ relative to the axis of the chandelier arm extension **30***d* in such a way that when the chandelier fixture **10***d* is assembled, the flange shoulder $58d_3$ projects over the opposite half of the flange **58***d* into adjacent parallel confronting relation with the flange shoulder $58d_1$. The spacing between the confronting flange shoulders $58d_1$, $58d_3$ is then just sufficient to snugly receive therebetween the lower apertured end of the bracket arm **70***d* in such a way that the pin $58d_2$ engages in the arm opening **72***d*. The bracket arm is then firmly anchored to the chandelier arm extension **30***d*. The flange shoulder $58d_3$ has a slot $58d_4$ opening to the wire passage **20***d* in the extension to facilitate insertion of the wires **16** in the passage.

The modified chandelier arm assembly **10***e* of FIGURES 17 and 18 is substantially identical to the chandelier arm assembly **10***d*, just described, and differs from the latter assembly only in that the single bracket anchor pin $58d_2$ is replaced, in the chandelier arm assembly **10***e*, by a pair of spaced lugs $58e_2$ on the flange shoulder **58***e* for engaging in notches **72***e* in the arm **70***e* of the socket mounting bracket **68***e*.

FIGURES 19 and 20 illustrate a modified chandelier arm assembly **100** according to the invention which utilizes a bent tube **102** as the arm of the assembly in lieu of an injection molded arm, as in the earlier embodiments of the invention. The tubular chandelier arm **102** may be specifically formed for use in the present chandelier assembly or this arm may comprise a tubular arm of a conventional chandelier structure of the kind referred to earlier. According to the present invention, the outer end of the arm is threaded and formed with a pair of diametrically opposed bayonet slots **104**. Mounted on the outer end of the chandelier arm **102** is a simulated candle and candle holder assembly **106** including an axially split body **108** forming an arm extension, a lamp socket mounting bracket **110**, a lock nut **112**, a bobeche **114**, a candle holder **116**, and a candle sleeve **118**. The arm extension **108**, bracket **110**, bobeche **114**, candle holder **116** and candle sleeve **118** are virtually identical to those of the earlier chandelier arm assembly **10** differ only in that the arm extension **108** is formed separately from the chandelier arm **102** and has a lower counterbore **120** for receiving the threaded outer end of the arm and internal pins **122** for engaging in the arm slots **104**. The lock nut **112** is threaded on the arm below the extension **108** and has a socket **123** in its upper end for receiving the base of the extension.

During assembly of the fixture, the two halves of the arm extension **108** are first separated to permit interlocking engagement of the bracket **110** with the extension, after which the extension halves are reassembled to cage the bracket tongue **124** in the same manner as described earlier in connection with the chandelier arm assembly **10**. The chandelier arm **102** and arm extension **108** are then

joined by threading the lock nut **112** downwardly on the arm to enable the outer end of the arm to be inserted into the arm extension counterbore **120**, with the arm extension pins **122** engaging in the arm slots **104**, and subsequent rotation of the extension to its position of FIGURE 19 wherein the pins are disposed in the closed ends of the slots. The lock nut is then threaded upwardly against the extension to clamp the two halves of the extension together as well as to firmly lock the extension to the chandelier arm. Finally, the bobeche **114**, candle holder **116**, and candle sleeve **118** are assembled over the chandelier arm extension **108** in such a way that the bobeche is clamped between the lock nut and the candle holder, as shown. In this regard, it will be understood that the arm extension **108** and candle holder **116** have coacting locking flanges, locking shoulders, and stop ribs like those of the earlier chandelier arm assembly **10**.

The invention has been described in considerable detail in order to comply with the patent laws by providing a full public disclosure of at least one of its forms. However, such detailed description is not intended in any way to limit the broad features or principles of the invention, or the scope of patent monopoly to be granted.

Having described the invention, what is claimed as new in support of Letters Patent is:

1. In a lighting fixture, the combination comprising:
an elongated, curved injection molded fixture body for mounting a lamp socket at one end thereof,
said body being split along a parting plane through the entire length thereof to form a pair of mating body sections having confronting parting surfaces,
the parting surface of one of said mating body sections being flat and the parting surface of the other of said body sections having a passage opening laterally therethrough, said passage extending in a curved configuration throughout the length of said body for receiving electrical wires for conveying current to said lamp socket,
said passage being of sufficient depth that a pair of electrical wires may be fully inserted therein prior to the assembly of said pair of body sections together; and
locking means for releasably securing said body sections in assembled relation wherein said one body section closes the open side of said passage to captivate said wires therein.

2. A lighting fixture according to claim **1** wherein:
said locking means comprise removable collar means removably fitted about said body at opposite ends of said passage in such a way as to firmly clamp said body section to one another.

3. A lighting fixture according to claim **2** wherein:
said body defines a split spindlelike extension about one end of said passage, and
said collar means comprise a generally tubular collar member positioned on and axially removable from said extension.

4. A lighting fixture according to claim **3** including:
coacting locking means on said collar member and extension for releasably locking said collar member against axial movement from said extension.

5. A lighting fixture according to claim **1** wherein:
said body defines an extension about one end of said passage for insertion through an opening in a mounting member, said extension having diametrically opposed parallel exterior locking grooves, and
said locking means comprise a slotted lock plate straddling said extension and engaging said shoulder with the slot edges of said plate engaging said locking surfaces in said grooves.

6. A lighting fixture according to claim **1** wherein:
said fixture body comprises a curved arm for a chandelier including a central pendant,
said arm has an inner end for attachment to said pendant and an outer end,
said arm is curved and said wire passage is curved to follow the contour of said arm, and
which further includes means at the outer end of said arm for mounting a lamp socket.

7. A lighting fixture according to claim **6** wherein:
said chandelier arm includes an inner normally horizontal extension for insertion through an opening in said chandelier pendant and an outer normally upright spindlelike extension,
said wire passage extends axially through said arm extensions, and said extensions are axially split,
said locking means comprise an inner locking member engaging over the split portions of said inner arm extension and an outer tubular lock collar surrounding said outer arm extension, and
said socket mounting means are located at the upper end of said outer arm extension.

8. A lighting fixture according to claim **1** wherein:
said fixture body has an outer end;
said wire passage extends axially through said outer end, and said outer end is axially split into two mating halves;
and which further includes a lamp socket mounting bracket having an arm extending axially from said outer end, and means releasably joining said outer end and the adjacent end of said bracket arm in nonrotatable relationship.

9. A lighting fixture according to claim **1** wherein:
said fixture body comprises a lamp socket mounting extension for a tubular chandelier arm, and
means for releasably joining said extension to one end of said arm.

10. In a lighting fixture, the combination comprising:
a fixture body comprising a curved arm for a chandelier including a central pendant, said arm having an inner end for attachment to said pendant and an outer arm;
means at the outer end of said arm for mounting a lamp socket;
said fixture body being split along a parting plane through the entire length thereof to form a pair of mating body sections having confronting parting surfaces, said body having a passage therethrough which is curved to follow the contour of said arm, for receiving electrical wires for conveying electrical current to said socket, said passage opening laterally through the parting surface of one of said body sections so as to accommodate placement of said wires in said passage when said body sections are separated;
and locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires therein;
said chandelier arm including an inner normally horizontal extension for insertion through an opening in said chandelier pendant and an outer normally upright spindle-like extension, said wire passage extending axially through said arm extensions and said extensions being axially split;
said locking means comprising an inner locking member engaging over the split portions of said inner arm extension and an outer tubular lock collar surrounding said outer arm extension, said lock collar being a simulated candle holder;
said socket mounting means comprising a socket mounting bracket releasably secured to the upper end of and rising from said outer arm extension to a position above said simulated candle holder, and a lamp socket secured to the upper end of said bracket;
and which further includes a removable bobeche mounted on and surrounding said outer arm extension at the base of said simulated candle holder, and a removable candle simulating sleeve surrounding said socket and mounting bracket and having its

lower end disposed within said simulated candle holder.

11. In a lighting fixture, the combination comprising:
a fixture body for mounting a lamp socket, said fixture body having an outer end;
said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket,
said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,
said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated, and
said wire passage extending axially through said outer end, and said outer end being axially split into two mating halves;
locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;
and which further includes a lamp socket mounting bracket having an arm extending axially from said outer end, and means releasably joining said outer end and the adjacent end of said bracket arm in non-rotatable relationship;
said joining means comprising a transverse tongue on said adjacent bracket end engaging in internal grooves within said outer end of said body about said wire passage in such manner that said tongue is captivated in said grooves when said mating body sections are locked to one another and said bracket is disengageable from said fixture body by separation of said mating body sections.

12. A lighting fixture according to claim 11 wherein:
said mounting bracket includes a second arm generally parallel to and coextensixe with said first bracket arm and said bracket tongue extends between and is joined to said bracket arms.

13. In a lighting fixture, the combination comprising:
a fixture body for mounting a lamp socket, said fixture body having an outer end;
said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket,
said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,
said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated,
said wire passage extending axially through said outer end, and said outer end being axially split into two mating halves;
locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;
and which further includes a lamp socket mounting bracket having an arm extending axially from said outer end, and means releasably joining said outer end and the adjacent end of said bracket arm in non-rotatable relationship, including a transverse slotted tongue on said adjacent arm end straddling said outer end of said body with the slot edges of said tongue engaging external grooves in said outer end;
said locking means comprising a lock collar surrounding said outer end and engaging said bracket arm to retain said bracket tongue in said grooves.

14. In a lighting fixture, the combination comprising:
a fixture body for mounting a lamp socket, said fixture body having an outer end;
said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket,
said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,
said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated,
said wire passage extending axially through said outer end, whereby said outer end is split into two mating halves;
locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;
a lamp socket mounting bracket including a pair of resilient coextensive bracket arms extending axially of and having ends situated adjacent said outer end, said adjacent arm ends extending into the adjacent end of said wire passage and having outwardly directed transverse tongues engaging in internal grooves within said outer end about said wire passage; and
said arms being biased away from one another to retain said tongues in said grooves and said arms being adapted to be urged toward one another to disengage said tongue from said grooves and thereby release said bracket for axial separation from said body.

15. In a lighting fixture, the combination comprising:
a fixture body for mounting a lamp socket, said fixture body having an outer end;
said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket,
said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,
said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated,
said wire passage extending axially through said outer end, whereby said outer end is axially split into two mating halves;
locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;
a lamp socket mounting bracket including an arm extending axially from said outer end; and
means releasably joining said outer end and the adjacent end of said bracket arm including a pair of confronting generally parallel axially extending shoulders on said outer end straddling said adjacent arm end, and means projecting from one of said shoulders through an opening in said adjacent arm end to interlock said arm with said body.

16. A lighting fixture according to claim 15 wherein:
said confronting shoulders are laterally offset from said wire passage toward one mating half of said body, and said wire passage extends axially through and opens through the outer end of the other half of said body.

17. In a lighting fixture, the combination comprising:
a fixture body for mounting a lamp socket, said body having a spindle-like extension at one end;
said body having a passage therethrough to receive

electrical wires for conveying electrical current to said socket,

said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,

said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated,

said wire passage extending axially through said body extension, whereby said extension is axially split into two mating halves; and

locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;

said locking means comprising a radially enlarged locking flange on said body extension having two diammetrically opposed flat sides and two intervening diametrically opposed radially extending ends, and a locking collar surrounding said body extension and having a pair of diametrically opposed internal locking shoulders, said collar being rotatable to a locked position wherein said locking shoulders engage under said locking flange ends to restrain and collar against axial movement from said body extension and said collar being rotatable to an unlocked position wherein said shoulders are axially aligned with said flat flange sides to release said collar for axial movement from said body extension.

18. In a lighting fixture, the combination comprising:

a fixture body for mounting a lamp socket, said fixture body comprising a lamp socket mounting extension for a tubular chandelier arm, and means for releasably joining said extension to one end of said arm;

said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket,

said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces,

said body opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated;

locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage; and

said joining and locking means comprising a counterbore extending into one end of said extension for receiving said one end of said chandelier arm, a lock nut having a socket entering one end of said nut and receiving said one end of said extension, and pins mounted on the two halves of said extension and extending inwardly from the wall of said counterbore for engaging in bayonet slots in said arm.

19. In a lighting fixture, the combination comprising:

a fixture body comprising a lamp socket mounting extension;

said body having a passage therethrough to receive electrical wires for conveying electrical current to said socket, said body being split along a parting plane intersecting said passage along the entire length thereof to form a pair of mating body sections having confronting parting surfaces, said passage opening laterally through the parting surface of one body section, thereby to accommodate placement of said wires in said passage when said body sections are separated;

locking means for releasably securing said body sections in assembled relation wherein said other body section closes the open side of said passage to captivate said wires in said passage;

a tubular chandelier arm for supporting said extension;

said extension having a counterbore entering one end thereof and receiving one end of said arm and pins extending inwardly from the wall of said counterbore and engaging in bayonet slots in and opening through said one end of said arm;

said locking means comprising a lock nut threaded on said arm end and having a socket receiving said one end of said extension;

a bobeche positioned over said extension above said lock nut;

a simulated candle holder surrounding said extension above said bobeche;

coacting means on said candle holder and extension for releasably locking said holder to said extension in such manner as to clamp said bobeche against said lock nut;

a lamp socket mounting bracket releasably secured to said extension and rising above said candle holder; and

a candle sleeve rising from said candle holder in surrounding relation to said mounting bracket.

20. An arm assembly for a chandelier having a central pendant comprising:

an arcuate, externally embossed, injection molded chandelier arm having inner and outer ends, a normally horizontal extension at said inner end for attachment to said pendant, a normally upright spindlelike extension at said outer end, and a passage extending longitudinally through said arm and axially through said extensions for containing concealed electrical wires,

said arm being split along a longitudinal parting plane of symmetry intersecting said passage along the entire length thereof to form a pair of mating arm sections having confronting parting surfaces, and said passage opening laterally through the parting surface of one arm section, thereby to accommodate placement of said wires in said passage when said arm sections are separated,

a bobeche removably positioned on the outer end of said arm at the base of said outer arm extension,

a simulated candle holder surrounding said outer arm extension above said bobeche,

coacting means on said bobeche, candle holder, and arm for releasably securing said holder and bobeche to said arm in such manner as to clamp the outer ends of said mating arm section to one another,

a lamp socket having a mounting bracket,

means releasably and non-rotatably securing said mounting bracket to said outer arm extension in such manner that said socket and bracket rise above said candle holder, and

means for releasably securing said inner arm extension to said chandelier pendant and releasably clamping the inner end of said mating arm sections to one another.

21. In a light fixture containing concealed wires, the combination comprising:

an elongated fixture body having two ends, and an internal passage formed therein extending between said two ends and adapted to receive the concealed wires, said fixture body being formed from at least two longitudinal sections whose mating surfaces cooperatively define said passage;

a fixture member adapted to be secured to one end of said fixture body and having an internal passage for receiving the concealed wires;

one of said fixture body end and said fixture member having an opening into which the other is adapted

to be longitudinally inserted so as to longitudinally align the respective internal passages thereof;

and a locking member adapted to be disposed about said fixture body end and movable relative thereto for achieving a locking action, said fixture body end and said locking member being provided with interengaging cam means such that the movement of said locking member produces a thrust in a direction parallel to the axis of the concealed wires for locking said fixture body end and fixture member together.

22. A light fixture as claimed in claim **21** wherein said opening formed in one of said fixture body end and said fixture member is of non-circular configuration, and the inserted portion of the other of said fixture body end and fixture member is of a mating configuration, whereby said fixture body end and fixture member when interengaged are locked against relative rotation about the axis of the wires concealed therein.

23. A light fixture as claimed in claim **21** wherein said fixture member is a lamp holder which is inserted into an opening formed between the ends of said fixture body sections, and said locking member is a collar which is rotatably disposed about said fixture body end.

24. A light fixture as claimed in claim **21** wherein said fixture member has an outer wall in which said opening is formed, said fixture body end extends through said opening into the interior of said fixture member, and said locking member engages the inner surface of said outer wall.

25. A light fixture as claimed in claim **22** wherein said fixture member is a lamp holder which is inserted into an opening formed between the ends of said fixture body sections, and said locking member is a collar which is rotatably disposed about said fixture body end.

26. A light fixture as claimed in claim **22** wherein said fixture member has an outer wall in which said opening is formed, said fixture body end extends through said opening into the interior of said fixture member, and said locking member engages the inner surface of said outer wall.

References Cited

UNITED STATES PATENTS

2,221,505	11/1940	Benander	240—137
2,278,433	4/1942	Elting	240—78
2,279,034	4/1942	Elting	240—78
2,298,554	10/1942	Elting	240—78

FOREIGN PATENTS

244,121	3/1963	Australia.
133,583	5/1933	Germany.

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