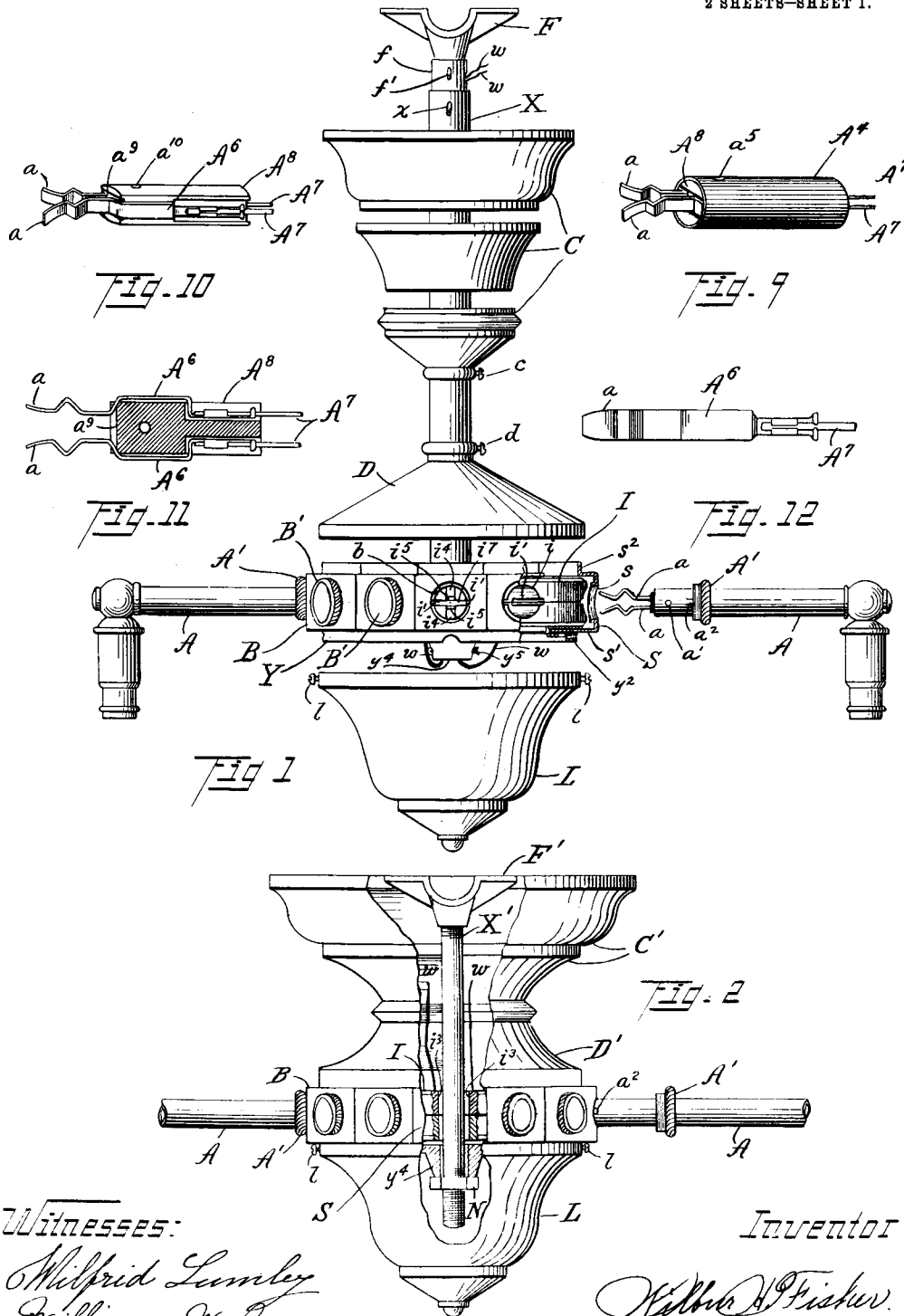


W. H. FISHER.
CHANDELIER AND FIXTURE.
APPLICATION FILED JAN. 6, 1912.

1,045,273.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses:

Milfrid Lumley
William W. Sumner

Inventor

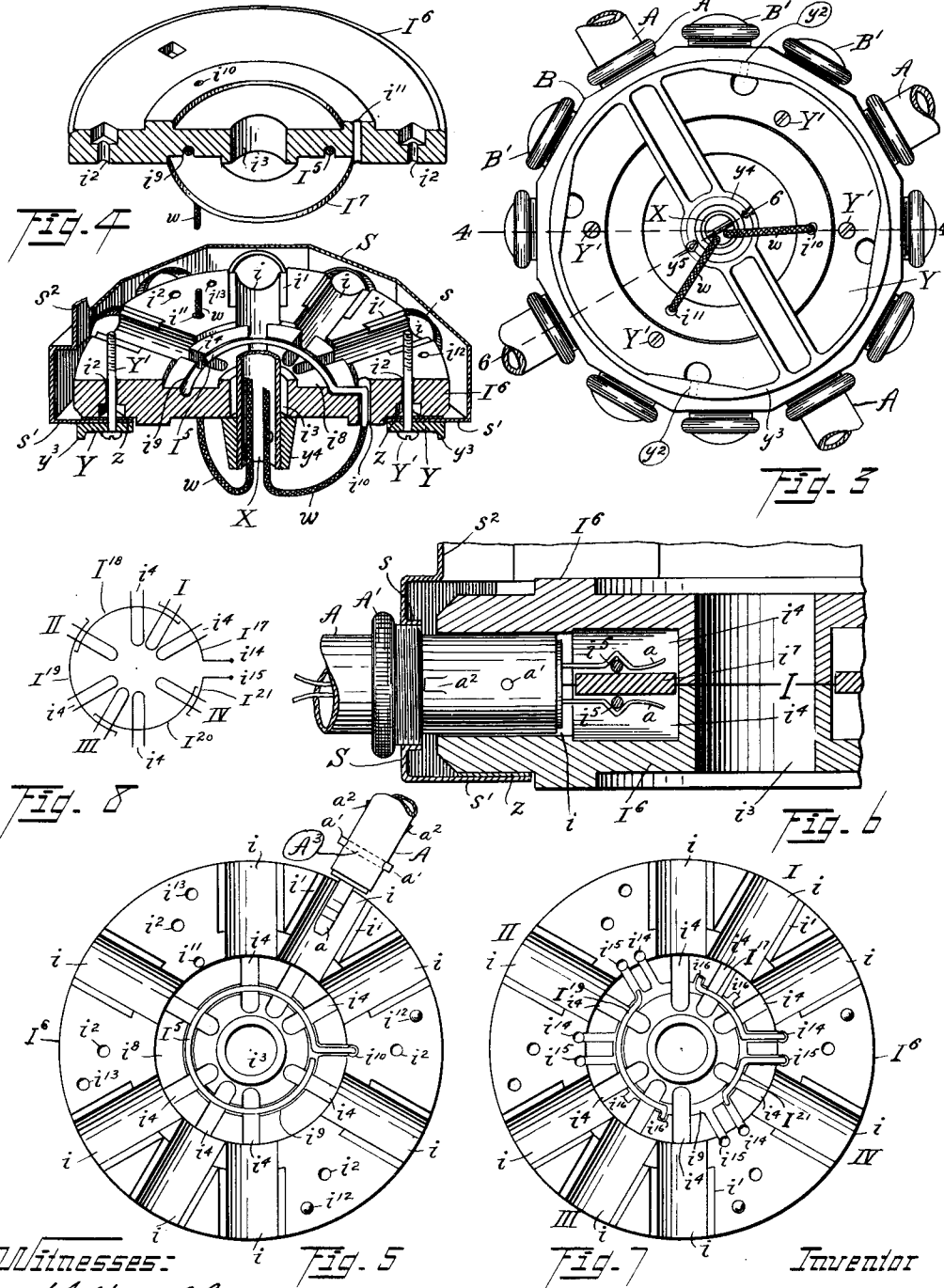
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Witnesses:
Melville Lumley
William W. Sumner.

Inventor
William H. Fisher.

UNITED STATES PATENT OFFICE.

WILBUR H. FISHER, OF CONNEAUT, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

CHANDELIER AND FIXTURE.

1,045,273.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed January 6, 1912. Serial No. 669,777.

To all whom it may concern:

Be it known that I, WILBUR H. FISHER, a citizen of the United States, residing at Conneaut, county of Ashtabula, State of Ohio, have invented certain new and useful Improvements in Chandeliers and Fixtures, of which the following is a specification.

My invention relates to chandeliers and fixtures intended to carry electric lights, and its object is a novel fixture possessing various advantages.

Fixtures of the general type with which my invention is specially concerned comprise a body or junction part intended to be supported from a ceiling or a wall and a plurality of arms or branches extending from said body part and supporting electric lamps.

My invention comprises various features of construction and various combinations and arrangements of parts, etc., which can best be disclosed through the description of a fixture embodying it.

While the chandelier hereinafter described represents the best form or embodiment of my invention at present known to me, so that many of its specific details are important on account of their specific advantages, yet the invention is not confined to such details, but presents features of a more broadly novel character which will appear hereinafter and will be particularly indicated in my claims.

Although my invention can be embodied and applied in electrical fixtures of various sorts, I have herein shown and described an electrical fixture designed for the use of electricity only.

In the accompanying drawings, Figure 1 is an elevation of one style of chandelier, one of the arms being shown as withdrawn therefrom, and several of the other parts being shown as displaced from their ordinary positions or broken away in order to make apparent features which would otherwise not appear. Fig. 2 is an elevation of a somewhat different style of chandelier, various parts being broken away to show the interior construction, and a part A' associated with one of the arms being shown as withdrawn from its ordinary position. This style of chandelier differs from that shown in Fig. 1 as regards features connected with its support,—the differences being such as specially adapt it to be arranged close to the

ceiling. Fig. 3 is a view of the junction part or body B of the chandelier shown in Fig. 1 as seen from beneath when the part L shown in Fig. 1 is out of the way, the fixture being turned 30 degrees counter-clockwise from the position shown in Fig. 1. Fig. 4 is a perspective view from above, partly in section at a plane corresponding to the line 4—4 in Fig. 3, showing various parts comprised in the body, some of the parts being separated from one another in order that the interior conformation and arrangement may be visible, and the parts S and I^e being shown as cut or broken away for a like purpose. Fig. 5 is a plan view showing the lower of the parts I^e appearing in Fig. 4 wholly removed from most of the other parts there associated with it, and in its entirety. Fig. 6 is a fragmentary section at a plane corresponding, say, to the line 6—6 in Fig. 3, showing an arm in position in one of the arm-holes in the body, certain of the parts shown in Fig. 3 being omitted. Fig. 7 is a plan view illustrating a modification of the parts shown in Fig. 5; and Fig. 8 is a diagram illustrating the arrangement of electrical parts according to this modification. Fig. 9 is a perspective view of certain of its parts removed from an arm; Fig. 10 is a perspective view of some of the same parts when removed from a sleeve in which they are inclosed in Fig. 9; Fig. 11 is a section through the part A^e on a plane just above the upper edges of the parts A^e in Fig. 10 illustrating the form and arrangement of the parts shown in Fig. 10; and Fig. 12 is an enlarged detail view showing the manner in which a wire may be attached to one of the parts A^e shown in Figs. 9, 10 and 11.

I will first describe in a brief way some of the general features which are common to the chandeliers shown in Figs. 1 and 2. It is to be understood, however, that except as indicated the whole of the following description applies to both these styles of fixture. As shown in Figs. 1 and 2, a chandelier of either of the styles illustrated comprises a junction part or body proper B, removable arms A, and additional parts by which the chandelier is supported. The junction part or body B has holes or sockets b adapted to receive and support the arms A; and the body and the arms comprise electrical circuits, and also contact means for combining these several circuits so as to form electrical

connections for the lamps when the arms are in place in the arm-holes; and provision is made so that when inserted in the body the arms may be secured against accidental displacement. As shown, the arms are not screwed into the arm-holes or the like, but simply inserted and pushed home, in which case accidental displacement of the arms may be prevented by suitable engagement of the arms in the arm-holes to keep them from turning and suitable locking means adapted to secure them against being withdrawn. While the arm contacts may serve for the engagement of the arms in the body to prevent them from turning, or as a locking means to prevent their withdrawal, or both, it is preferable to make other or additional provisions for this purpose, particularly if the arm contacts have the highly advantageous form of yielding metallic members *a* projecting from the ends of the arms as shown at the right in Fig. 1.

I will now describe how the body B may be constructed for both the illustrated styles of chandelier, and the manner in which it is mounted and supported in each of them. As will be seen from Figs. 1 and 2 the body B comprises a part I which carries contact means with which the contact means on the arms are engaged when the latter are inserted in the arm-holes or sockets *b* and also contains socket-portions or sockets *i* which afford proper bearing for the ends of the arms. At the sides of these sockets *i* are grooves *i'* in which projections *a'* on the arms are received and engaged so as to prevent the arms from turning. The necessary insulation of the contacts and other electrical parts is best secured by making the part I itself of insulating material, in which case it may be desirable to secure it to a metallic member Y. As shown, the part I is inclosed by a shell or shrouding S, so that—since the term “body” alone may be understood as referring either to this inner junction part I or to the junction part or body B as a whole—the part I may be distinguished as the “inner body.” The shrouding S not only forms an ornamental casing for the junction part I, but also comprises outer portions *s* of the arm-holes or sockets *b*,—which portions may serve in the securing of the arms against withdrawal and may be internally threaded (as shown) for this purpose. The holes *s* may be made relatively large so as to allow the projections *a'* on the arms to pass them quite easily. As shown, the interior part I has eight converging sockets *i* which are arranged with 30 and 60 degree spacing (see Figs. 4 and 5), so that by the use of the proper ones a chandelier having two, three, four, or six equally spaced arms can be constructed; but for the sake of uniformity of appearance the shrouding is nevertheless made with twelve equally

spaced holes *s* and the four blind ones closed by ornamental screw plugs B' (see Figs. 1, 2 and 3),—as also the others at any time not in use.

The member Y to which the insulating inner body I is secured (see Figs. 1, 3 and 4) is preferably not a portion of the casing or shrouding S, but a separate part (made, for example, of cast iron). The part S, however has an inwardly extending flange *s'* (see Fig. 4) which is clamped between the parts Y and the lower side of the part I. The part S is definitely alined in proper position with respect to the other parts by the screws or bolts Y' which serve to secure the part I to the part Y, these screws passing through holes in the flange *s'* and extending on up through holes *i*² in I to engage nuts (not shown) which rest in angular depressions in the upper side of I. Washers *z* of any suitable material (as card board, for example) may be placed between the inner body I and the flange *s'*. When the part I is made of porcelain or any other more or less frangible material, the member Y is useful to reinforce and brace it, as well as in other ways which will presently appear.

In the style of chandelier and the construction shown in Fig. 1, there is a foot F (of cast iron, for example) which is adapted to be secured to the ceiling, this foot having a portion which fits into the hollow part *f* and is secured therein by a cotter pin *f'*, and the part *f* in turn fitting into the hollow stem or standard X and being likewise secured therein by a cotter pin *x*. The current supply wires *w* which pass down from the ceiling through the standard X enter through a hole in the side of the part *f*. When the chandelier is fully assembled, the foot and the associated parts are covered by the three-part canopy C, which is held in place on the member X by a set screw *c*. There are also a part D (held in place on the standard X by set screw *d*) and a “bottom shell” part L (held in place by screws *l* that enter holes *y*² in a rim *y*³ on the part Y), which serve a purpose similar to that of the canopy C. The standard X extends down through the hole *i*² in the inner body I (see Fig. 4), and its lower end fits into the hub *y*⁴ of the part Y and is secured therein by the cotter pin *y*⁵ (see Figs. 1 and 3). When the part D is brought down so as to fit over the rim *s*² on the upper edge of the shrouding S and secured in place, it helps to make the body B firm and rigid with respect to the standard. In the construction shown in Fig. 2, there are likewise a foot F' and a stem X'; but the stem X' is threaded directly into the foot and the wires *w* are arranged outside of the stem, and both the stem and the foot are inclosed by the two-part canopy C' and the part D', which fit directly together as shown. The stem X' extends through the hub *y*⁴

as well as through the inner body I, and on its lower end is threaded a nut N which clamps the part C' and D' between the body proper and the ceiling. The bottom shell L is arranged and secured just as in Fig. 1.

I will now proceed to describe in detail a construction and arrangement of the inner body I and the electrical parts and connections associated with it which are equally adapted for both the styles of chandelier shown, also indicating the particular arrangement of the inner body I with respect to other parts that may be preferred in each style. As will be seen from Figs. 1 and 6, there are at the inner end of each of the sockets i in the inner body I two inwardly extending chambers i^4 which are in effect prolongations or extensions of the socket and serve to receive the contacts a which project from the ends of the arms A. In the arrangement shown, (see Figs. 4, 5, and 6) the contact means carried by the inner body I are arranged centrally with reference to the sockets i and are completely inclosed in it and when an arm is in place in a socket they lie between the arm contacts a and are engaged with them at i^5 in the chambers i^4 , opposite or adjacent the inner end of the socket proper,—preferably in a manner hereinafter described. For the sake of combining strength, simplicity, and the best insulation, it is preferable that both the outer portion of the body I which contains the converging sockets i and the central part which contains the contact means be of insulating material, and that the outer and central portions be integral. The body I may, however, advantageously comprise parts separable through the center where the contacts are arranged and the chambers i^4 located in a direction transverse with respect to the sockets. As shown (see Figs. 4 and 5), the body is made in two parts I^6 each of which contains part of each socket i and its grooves i' together with one of the chambers i^4 opening into the socket, and also accommodates the contact means exposed at i^5 in the chambers i^4 lying in it; and the two parts are exact duplicates of one another. The wall or partition i^7 by which the chambers i^4 associated with each socket are separated may consist of insulating means interposed between the halves I^6 of the body, and, in particular, of a portion of a flat annular member I^7 of vulcanite, fiber, or any suitable insulating material, (see Figs. 4 and 6) inclosed between the halves, the abutting faces of the two halves having broad, shallow annular depressions or grooves i^8 to accommodate it. The contact means exposed at i^5 in the chambers i^4 in the several halves may advantageously be arranged between their juxtaposed faces in passages, depressions, or recesses at the bottom of the grooves i^8 . As

shown in these figures, the depressions have themselves the form of annular grooves i^9 , each made up of a number of short curved grooves, and two annular members or rings I^5 constitute the contact means: thus when the arms are put in place in the sockets they will all be connected in parallel between these two contact members whose engaging portions i^5 associated with each socket lie in the path of the contact means on an arm as it enters the socket. Each of the members I^5 may be formed of a piece of fairly large copper wire bent to shape, and its current connection may consist of a portion of the wire bent so as to extend radially outward from the ring in an extension of the groove i^9 to the hole i^{10} just beyond the edge of the shallow annular depression i^8 . Here the wire is bent at right angles to the plane of the ring and attached to one of the supply wires w referred to above. In the case of the contact member I^5 lying in the lower half of the body I, this portion extending at right angles to the plane of the ring or annular portion and the attached supply wire w pass down through the hole i^{10} in the same half. In the case of the contact member I^5 lying in the upper half, this portion and the attached supply wire w do not pass through the hole i^{10} in the upper half at all, but instead pass down through the hole i^{11} in the lower half, this hole lying 120 degrees from the hole i^{10} in the lower half. The fitting together of the two halves I^6 in any but the proper manner with the holes i^{10} in them 120 degrees apart is insured against by two dowels i^{12} and two corresponding holes i^{13} with which each half is provided.

In the case of the construction shown in Fig. 1, the part I^6 from which the wires w issue will preferably lie next the part Y and form the lower half of the body I, as just described, and the wires w will be bent upward through the hole i^3 so as to pass up through the standard X. With the construction shown in Fig. 2, however, the inner body I will preferably be secured to the part Y in a manner just the reverse of the above, so that the part I^6 from which the wires issue will lie away from the part Y and form the upper half of the body I, and the wires w will not be bent to pass through the hole i^3 , but will extend directly upward to the ceiling.

I will now describe the construction shown in Figs. 7 and 8, which indicate how the parts I^6 of the body and the contact means carried by them may be modified and arranged so that a series connection of the arms can be obtained. It will be understood, however, that the form of the parts I^6 shown in Fig. 7 is equally adapted for a parallel connection of all the arms by the form of contact means just described. As shown in Fig. 7, the holes i^{10} and i^{11} in each half of

the body are replaced by a pair of holes i^{14} and i^{15} and corresponding approximately radial grooves, and there are also two additional pairs of such holes and grooves.

5 There are also a plurality of notches i^{16} in the outer edges of the grooves i^9 . The contact means in the grooves i^9 consist of a plurality of electrically isolated sections or segments, the ends of these contact sections being bent outward so as to lie in the notches i^{16} or in radial grooves not otherwise occupied and keep the sections in their proper places. Insulating pieces may, if desired, be placed in the groove i^9 between the contact

10 sections. As shown, the sections are arranged to produce a series connection of the arms in the sockets marked I, II, III, and IV. Of course only the contact sections I^{17} , I^{19} and I^{21} in the lower half of the body appear in Fig. 7; but in Fig. 8 the contact sections I^{18} and I^{20} in the upper half and their arrangement with reference to the chambers i^4 and the sections I^{17} , I^{19} , and I^{21} in the lower half are diagrammatically indicated.

15 (It will be understood that where the upper contact sections overlap the lower ones circumferentially they will most naturally be arranged directly above them instead of in the relative radial positions which for clearness of illustration the lines representing them occupy in Fig. 8). At each arm current passes from an upper contact section to a lower contact section, or vice versa, as will be readily understood; and in each of the

20 contact sections except the two terminal sections I^{17} and I^{21} the current passes from one arm to the next arm. By a slightly different arrangement of contact sections it is easy to adapt the fixture for two, three, or six serially connected arms; and it is also easy to obtain a connection of various arms in series parallel or parallel series. Of course not all the holes i^{14} and i^{15} or their radial grooves are needed for the four-arm series arrangement illustrated, nor all the notches i^{16} ,—

25 these not shown as in use being intended to provide for other arrangements and connections of the arms.

I will now, finally, describe the chandelier

30 arms A, first setting forth their external features and the manner of their insertion in the body, and then their internal features and construction. Reference has already been made to the projections a' which prevent the arms A from turning in the sockets, and it will readily be observed (see Figs. 1, 5, and 6) that in consequence of the proportions and arrangement of the parts these projections make it impossible to insert an

35 arm very far in a socket except in one or two positions 180 degrees apart. It will also be observed that before the contacts a on an arm can approach the portions i^5 of the contacts I^5 which they engage in a socket the

40 projections a' must be in the grooves i' and

the insulating partition i^7 must be between the contacts a , so that the short circuiting of the fixture or injury of the contacts that might otherwise result from the careless introduction of an arm askew is safeguarded

45 against. As it is advantageous that the yielding contacts a be not merely pressed against the contacts I^5 (with which, as shown, they engage laterally) when the arms are in place in the sockets but rather in definite gripping

50 or interlocking engagement with them, these contacts a may be made quite resilient and may have the bent form shown in Figs. 6, 9, 10, and 11. Then as an arm is pushed into a socket the diverging ends of these contact

55 springs will first be forced apart by the contacts I^5 and then come together of themselves so that the contacts I^5 will rest in the sharp angles of the springs just beyond their diverging portions, and the parts will thus be retained and locked in the relative positions shown in Fig. 6. Of course the engagement of the contacts a and I^5 in this manner of itself tends to prevent the arms from turning; but it is obviously preferable

60 not to subject the contacts to strain of this kind, but rather to provide the projections a' and grooves i' already described. It is preferable also not to rely entirely upon the spring contacts a as a locking means to secure the arm against withdrawal from the socket, but to provide additional locking means. For this purpose an externally threaded collar A' may be screwed into the

65 outer portion s of the arm-hole after the arm has been pushed home so as to engage the projections a^2 on the arm and thus positively prevent its withdrawal (Figs. 1 and 6).

Referring now to the construction and

70 internal features of the arms, the projections a^2 which co-act with the collar A as above described may conveniently consist of tongue-like portions punched from the metal of the arm and bent outward as shown

75 in Figs. 5 and 6. The projections a' next the end of the arm may consist of the protruding ends of a pin A³ (Fig. 5) which extends through the arm and serves to hold certain parts in place within it. As shown

80 in Figs. 9, 10, and 11, the parts within the arm comprise an insulating sleeve A⁴ (of vulcanite or insulating fiber, for example) pierced with two holes a^5 (one not shown) which serves as an insulative lining in the

85 end of the arm, a pair of metal strips A⁶ whose free ends form the spring contacts a , two wires A⁷ which are attached to the other ends of the strips A⁶ and conduct the current to the lamps carried by the arm, and a

90 flat-sided insulating part A⁸ (of porcelain or other suitable material) laterally recessed at one end and having a shallow groove a^9 across the other end, and also pierced with a hole a^{10} . The strips A⁶ are bent to con-

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form to the sides of the insulating piece A⁸ and overlap its end somewhat in the groove a⁹, so that when these parts are assembled (Fig. 10) and inserted in the rather tight-
 5 fitting sleeve A⁴ till the end of the insulating piece A⁸ is about flush with the end of the sleeve (Fig. 9) they are firmly held in proper position, and it only remains to insert the sleeve in the arm so that the hole
 10 a¹⁰ and the holes a⁵ in the sleeve register with the holes in the arm and to secure all the parts in place by means of the tight-fitting pin A³.

The wires A⁷ may be secured to the ends
 15 of the strips A⁶ which lie in the recesses in the part A⁸ in various ways, that illustrated in Figs. 10, 11, and 12 being very simple and effective. As here shown, the end of each strip somewhat resembles a fish's tail. The
 20 extreme end has a fork-like form and is bent up, as shown, and two fins which project from the narrow portion of the strip near the extreme end are also bent up to form a trough in alinement with the fork. The
 25 wire is laid in the trough and extends through the fork, and the sides of the trough are squeezed together upon it. If desired, the joint may be made still more secure by the application of solder.

30 The lamp sockets may be attached to the arms in any preferred or approved manner.

The advantages of the chandelier construction which I have described are numerous. In the case of the style of fixture
 35 shown in Fig. 1, the body B with the stem X attached and the arms A can be wired in the factory and sent out as individually complete and independent standard parts in substantially the condition in which they
 40 are shown in that figure,—the part D being of course fastened down in its normal position against the body,—and the canopy C and the bottom shell L can likewise be manufactured as independent standard
 45 parts. In order to assemble and install this style of fixture, it is then only necessary to attach the foot F to the ceiling and set the canopy C in the usual manner, to fasten the bottom shell L in place with its two screws l,
 50 and to insert the arms in the body and lock them with their screw collars A'. In the case of the style of fixture shown in Fig. 2, the body B can be sent out with the part D' very much in the shape in which it appears in
 55 Fig. 2. In order to assemble this style of fixture, it will then only be necessary to attach the foot F' to the ceiling, put the body B and the part D' in place with the canopy C' above them, screw the nut N on the standard X' beneath the hub y⁴ of the
 60 part Y until the parts are firmly clamped between the top of the body and the ceiling, and fasten on the bottom shell L and insert and secure the arms as before. None of the
 65 parts of either style of fixture require much

space; and any of them can be packed for shipment in very small bulk, either together or separately. Again, a fixture of any desired number of arms,—two, three, four, or six,—can be built up by simply unscrewing
 70 the proper plugs B' from the body and inserting the arms, and the number of arms can be altered with equal facility after the fixture has been installed for years. From a very small number of different standard
 75 parts of each kind a great variety of designs can be produced, and fixtures already installed can easily be altered in design as desired. The fixture is simple and strong in construction, and its parts are likewise few
 80 and simple, so that they can be very easily and cheaply manufactured. All the parts comprised in the arms and in the body B can be assembled expeditiously and cheaply. When the arms and the body have once been
 85 made up and tested in the factory, it will hardly ever be necessary to take them to pieces, for there is nothing about them to break or get out of order; and if after a fixture has been installed and in use one of
 90 its arms should need repair, it can be sent back to the factory for this purpose without removing or dismantling the fixture, or even rendering it unsightly.

What I claim as new and desire to secure
 95 by Letters Patent of the United States, is:

1. An electrical fixture comprising a junction part or body having arm-holes and a plurality of removable arms with their ends engaged therein so as to be prevented from
 100 turning, said body comprising an interior part of insulating material containing sockets which afford proper bearing for the arms and also carrying electrical contacts which are engaged with yielding contacts on the
 105 arms, and also comprising an exterior metal casing for said inner part and means in engagement with said arms and said casing whereby withdrawal of the arms is prevented.
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2. An electrical fixture comprising a junction part or body having arm-holes and a plurality of removable arms engaged therein so as to be prevented from turning, said
 115 body comprising an inner part having converging sockets which afford proper bearing for the arms and an exterior metal casing for said inner part having holes corresponding with the sockets in the inner part, there being contacts projecting inward from
 120 the arms which engage with contact means inclosed within said inner part and arranged centrally with respect to the sockets, and the arms being positively locked against withdrawal from the sockets.
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3. An electrical fixture comprising a junction part or body having arm-holes and a plurality of removable arms in said arm-holes, said body comprising an inner part
 130 of insulating material having converging

sockets which afford proper bearing for the round ends of the arms and are provided with grooves in which projections on the arms are engaged so as to prevent the arms from turning, and an exterior metal casing for said inner part having internally threaded holes which lie opposite the sockets in said inner part, there being yielding contacts projecting inward from the ends of the arms and engaged with suitable contact means inclosed within said inner part, and externally threaded collars screwed into said holes and engaging projections on the arms so as to prevent their withdrawal from the body.

4. A junction part or body for an electrical fixture having arm-holes adapted to contain removable arms, said body comprising an interior part of insulating material having radial sockets which are adapted to afford proper bearing for the ends of the arms and carrying electrical contacts which are adapted to engage with contacts carried by the arms so as to resist their withdrawal, and also comprising an exterior metal casing inclosing said inner part which has holes opposite the sockets in the inner part and is adapted to cooperate with suitable locking devices for additionally securing the arms in the sockets against displacement.

5. A chandelier body comprising a metallic casing having holes for removable chandelier arms and adapted to cooperate with means for securing the arms against displacement, and a part of insulating material inclosed in said casing which contains sockets adapted to afford proper bearing for the ends of the arms and carries contacts adapted to be engaged with contacts on the arms, said insulating part being secured to a metallic member beneath it which serves to brace it and having a hole for the passage of a supporting means downward therethrough to said member.

6. A body or junction part for an electrical fixture having arm-holes which are adapted to contain removable arms and comprising an insulating part which contains sockets adapted to afford proper bearing for the ends of the arms and carries electrical contacts adapted to be engaged with contacts on the arms, and also comprising a metallic member secured to said insulating part which serves to reinforce and brace it and is adapted for the attachment of suitable supporting means.

7. The combination with a chandelier body or junction part having a plurality of sockets adapted to contain the ends of removable arms and afford them proper bearing of a suitable member extending downward through the middle of said body and supporting it from beneath, said body comprising contact means carried in a central

insulating part through which said supporting member passes and adapted for engagement with contact means on the arms.

8. A junction part or body for an electrical fixture having a plurality of sockets adapted to contain the ends of removable arms and afford them proper bearing and carrying two contact members arranged adjacent the sockets and adapted to come into engagement with contacts on all the arms when the latter are put in place in the sockets.

9. A junction part or body for an electrical fixture having a plurality of sockets adapted to contain the ends of removable arms and afford them proper bearing and comprising an annular contact member arranged and adapted to engage in such wise as to resist turning of the arms with contact means projecting inward past it from the ends of the arms when they are in place in the sockets.

10. A junction part or body for an electrical fixture having sockets adapted to afford proper bearing for the ends of removable arms and to be engaged therewith so as to prevent them from turning, and also comprising electrical contacts adapted to engage and be interlocked with contacts on the arms so as to resist withdrawal of the arms from the sockets.

11. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing and to be engaged with them when they are introduced into the sockets and pushed home so as to prevent them from turning, and carrying electrical contact means arranged centrally with respect to the sockets and adapted to engage with contacts projecting inward from the arms.

12. A junction part or body for an electrical fixture having a plurality of converging sockets adapted to contain removable arms and afford them proper bearing and also carrying contact means adapted when the arms are inserted in the sockets to come into engagement with contact projecting inward from the arms, the contact means associated with each socket being so arranged in the path of two inwardly projecting contacts on an arm when the arm enters the socket as to come into engagement with them on opposite sides of an insulative wall.

13. A junction part or body for an electrical fixture having converging sockets adapted to contain removable arms and afford them proper bearing and comprising a plurality of annular electrical contact members carried in a central insulating part of the body and arranged one above another adjacent the inner ends of the sockets in the path of contacts on the arms when the arms enter the sockets, so that when an arm is

inserted both said contact members will come into engagement with contacts on it.

14. A junction part or body for an electrical fixture having in its outer portion a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing, and comprising a central insulating portion adapted to receive contacts projecting inward from the arms, and also comprising contact means carried in said insulating portion in the path of said contacts on the arms so as to come into engagement with said contacts within the insulating portion as the arms are inserted in the sockets.

15. A chandelier body or junction part having converging sockets adapted to contain the ends of removable arms and afford them proper bearing and comprising a central insulating part containing insulatively separated portions of the several sockets in which are contact means adapted to engage with contact means on the arms when the latter are in place in the sockets.

16. A chandelier body or junction part having converging sockets adapted to contain the ends of removable arms and afford them proper bearing and comprising a central insulating part containing insulatively separated chambers forming prolongations of the sockets, there being two such chambers for each socket each adapted to contain a contact projecting inward from the arm in such socket, and said body further comprising contact means adapted to engage with the said contacts of the arms in the various chambers.

17. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets which are adapted to contain removable arms and afford them proper bearing, and carrying contacts a plurality of which are arranged one above another opposite the inner end of each of the sockets and which are adapted to make connection within the body with contact means on the arms.

18. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets converging inward from its periphery which are adapted to contain removable arms and afford them proper bearing, and, also, carrying a plurality of central contact members arranged one above another opposite the inner ends of the converging sockets and adapted to make connection with the circuits in the arms.

19. A junction part or body for an electrical fixture formed of insulating material and containing a plurality of converging sockets adapted to hold the ends of removable arms and afford them proper bearing, and also containing electrical contacts completely inclosed within it a plurality of

which are adapted to be engaged at each socket between two contacts on the arm therein.

20. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets which are adapted to contain the ends of removable arms and afford them proper bearing, and containing two central contact members inclosed within it and arranged so that each shall be engaged with the contact means of each of the arms when the latter are in the sockets.

21. A chandelier body or junction part of insulating material having therein a plurality of converging sockets adapted to contain the ends of removable arms and afford them proper bearing, and also having a central opening adapted for the passage of a supporting member extending through said body, and, further, containing two annular passages extending around said opening which are adapted to contain contact means for engaging with contacts on the arms when the arms are in place in the sockets.

22. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain and support removable arms, and comprising parts which are separable through the sockets so that the sockets are divided lengthwise between them and which are adapted to carry between them contact means for making connection with the circuits in the arms arranged centrally with respect to the sockets.

23. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing, and comprising parts which are separable through the sockets so that the sockets are divided lengthwise between them and which have in their juxtaposed faces annular depressions for containing contact means adapted to engage with contacts on the arms when the arms are in place in the sockets.

24. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing, and comprising parts which are separable through the sockets so that the sockets are divided lengthwise between them and which have in their juxtaposed faces recesses arranged centrally with respect to the sockets for containing contact means adapted to make connection with the circuits in the arms, said parts being adapted to inclose between them insulating means for separating the contact means in the said recesses.

25. A junction part or body for an elec-

trical fixture having in its outer portion a plurality of converging sockets which are adapted to contain the ends of removable arms and afford them proper bearing and comprising parts of insulating material which are separable through the central portion of the body, and further comprising contact means arranged centrally with respect to the sockets for engaging with contacts on the arms and inclosed between the juxtaposed faces of the parts and carried in recesses in the face of one of them.

26. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets which are adapted to contain the ends of removable arms and afford them proper bearing, said body being constructed in two parts recessed on their juxtaposed faces so that each of them is adapted to contain contact means for engaging with contacts on the arms arranged centrally with respect to the sockets, and the parts when together being adapted to inclose said contact means between them.

27. A junction part or body for an electrical fixture formed of insulating material and having a plurality of converging sockets adapted to contain removable arms and afford them proper bearing, said body comprising insulating parts which are separable through the center of the body in a direction transverse with respect to the converging sockets and containing central contact members for engaging with contacts on the arms inclosed between the parts and separated by insulating means itself lying between said parts.

28. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing and comprising insulating parts which are separable through the center of the body in a direction transverse with respect to the sockets and are adapted to inclose between them insulating partition means for dividing the inner ends of the sockets longitudinally.

29. A junction part or body for an electrical fixture formed of insulating material and having converging sockets extending inward from its periphery which are adapted to contain the ends of removable arms and contacts projecting inward from said arms, said body comprising parts separable through the sockets transversely with respect thereto, each of the parts being adapted to contain one of the contacts on each of the arms and also to contain contact means arranged centrally with respect to the sockets for engaging with the arm contacts contained in that part, and the parts when assembled inclosing said contact means within them.

30. A chandelier body of insulating mate-

rial made in two parts and having radial sockets extending inward from its periphery and divided longitudinally between the parts, the parts having central holes adapted to accommodate the means by which the body is supported and each part containing grooves extending around the hole in it and adapted to contain contact means for making connection with the circuits in the arms.

31. A removable chandelier arm having a portion adapted to enter and engage a socket in a chandelier body so as to be prevented from turning and comprising a plurality of spring contacts projecting from the end of the arm which have outer portions that are closer together than other portions nearer the end of the arm and are adapted to be forced apart and allow contacts in the body to enter between them when the arm is inserted in the socket and then spring together and interlock with said contacts.

32. A removable chandelier arm adapted for insertion in a socket in a chandelier body and comprising contact members projecting from the end of the arm that enters the socket which are held in the arm between its walls and an insulating part therein and are engaged with said part so as to be held against displacement.

33. A removable chandelier arm adapted for insertion in a socket in a chandelier body and comprising contact strips which project from the end of the arm that enters the socket and are held in the arm between its walls and an insulating part secured in it, said strips being so bent that by their engagement with said insulating part they are kept from longitudinal displacement, and there being an insulative lining in the arm which surrounds said strips and insulating part.

34. A removable chandelier arm adapted for insertion in a socket in a chandelier body comprising a hollow end portion which enters the socket, an insulating part therein having lateral recesses at its inner end, a pair of metal strips which lie at opposite sides of said insulating part and are bent transversely so as to have shoulders which engage said insulating part and prevent longitudinal movement of the strips with respect thereto, and so that their inner ends to which the current wires in the arms are attached lie in said recesses, the other ends of said strips projecting from the end of the arm and forming contacts, an insulating sleeve or bushing in the arm fitting around said insulating part and said strips, and a pin which extends through the arm and said insulating part and secures all the parts in the arm.

35. In a junction part or body for an electrical fixture having a plurality of arm-holes adapted to contain removable arms, 13

the combination of an inner part of insulating material containing sockets adapted to afford proper bearing for the ends of the arms and carrying electrical contacts adapted to be engaged by contacts on the arms when the arms are in the sockets, an exterior casing inclosing said inner part and having holes for the arms and adapted to cooperate with suitable locking means for securing the arms, and a part fastened to one side of said inner part and affording means for its support, said casing being clamped between such part and said inner part.

36. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets which are adapted to contain removable arms and afford them proper bearing, and comprising electrical contacts adapted when the arms are inserted in the sockets to engage and be interlocked with contacts on the arms so as to resist their withdrawal from the sockets.

37. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing, said body comprising parts which are separable through the sockets so that the sockets are divided lengthwise and carrying electrical contact means adapted to come into engagement with contacts projecting inward from the arms when the arms are inserted in the sockets, and further comprising insulative partition means held between the parts for separating the body contact means engaging with the contacts of an arm at the point of engagement.

38. A junction part or body for an electrical fixture having a plurality of sockets adapted to receive and support removable

arms and comprising two contact members each arranged centrally with respect to the sockets with an engaging portion associated with each of the sockets in the path of contact means on an arm as the arm enters the socket, so that when the arms are put in place both said members shall come into engagement with contact means on all the arms.

39. A junction part or body for an electrical fixture having a plurality of sockets adapted to receive and support removable arms and comprising contact means having an annular portion arranged centrally with respect to the socket with an engaging portion associated with each of the sockets so arranged in the path of contact means on an arm as the latter enters the socket that when the arms are put in place contact means on all of them will engage laterally with said engaging portions.

40. A junction part or body for an electrical fixture having a plurality of sockets adapted to receive and support removable arms and comprising a plurality of contact members carried by a central insulating part of the body and themselves arranged centrally with respect to the sockets with engaging portions associated with the various sockets in the path of contact means on the arms as the arms enter the sockets, so that when the arms are put in place each of said contact members shall come into engagement with contact means on all the arms.

In witness whereof I have hereunto set my hand this 4th day of January, 1912.

WILBUR H. FISHER.

Witnesses:

WILLIAM W. AUMEN,

MILFRID LUMLEY.

the combination of an inner part of insulating material containing sockets adapted to afford proper bearing for the ends of the arms and carrying electrical contacts adapted to be engaged by contacts on the arms when the arms are in the sockets, an exterior casing inclosing said inner part and having holes for the arms and adapted to cooperate with suitable locking means for securing the arms, and a part fastened to one side of said inner part and affording means for its support, said casing being clamped between such part and said inner part.

36. A junction part or body for an electrical fixture formed of insulating material and having a plurality of sockets which are adapted to contain removable arms and afford them proper bearing, and comprising electrical contacts adapted when the arms are inserted in the sockets to engage and be interlocked with contacts on the arms so as to resist their withdrawal from the sockets.

37. A junction part or body for an electrical fixture having a plurality of converging sockets which are adapted to contain removable arms and afford them proper bearing, said body comprising parts which are separable through the sockets so that the sockets are divided lengthwise and carrying electrical contact means adapted to come into engagement with contacts projecting inward from the arms when the arms are inserted in the sockets, and further comprising insulative partition means held between the parts for separating the body contact means engaging with the contacts of an arm at the point of engagement.

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In witness whereof I have hereunto set my hand this 4th day of January, 1912.

WILBUR H. FISHER.

Witnesses:

WILLIAM W. AUMEN,
MILFRID LUMLEY.

Corrections in Letters Patent No. 1,045,273.

It is hereby certified that in Letters Patent No. 1,045,273, granted November 26, 1912, upon the application of Wilbur H. Fisher, of Conneaut, Ohio, for an improvement in "Chandeliers and Fixtures," errors appear in the printed specification requiring correction as follows: Page 3, line 10, for the word "are" read *is*; same page, line 96, for the word "hoel" read *hole*; page 4, line 60, for the word "or" read *of*; page 6, line 114, for the word "contact" read *contacts*; page 9, line 55, for the word "socket" read *sockets*; same page, lines 79 and 80, names of witnesses to signature of patentee, for "William W. Aumen" and "Milfrid Lumley" read *William W. Ammen* and *Wilfrid Lumley*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of February, A. D., 1913.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

It is hereby certified that in Letters Patent No. 1,045,273, granted November 26, 1912, upon the application of Wilbur H. Fisher, of Conneaut, Ohio, for an improvement in "Chandeliers and Fixtures," errors appear in the printed specification requiring correction as follows: Page 3, line 10, for the word "are" read *is*; same page, line 96, for the word "hoel" read *hole*; page 4, line 60, for the word "or" read *of*; page 6, line 114, for the word "contact" read *contacts*; page 9, line 55, for the word "socket" read *sockets*; same page, lines 79 and 80, names of witnesses to signature of patentee, for "William W. Aumen" and "Milfrid Lumley" read *William W. Ammen* and *Wilfrid Lumley*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of February, A. D., 1913.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.