June 3, 1930. M. J. FOX 1,761,203

JUNCTION BOX

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Fig. 1.

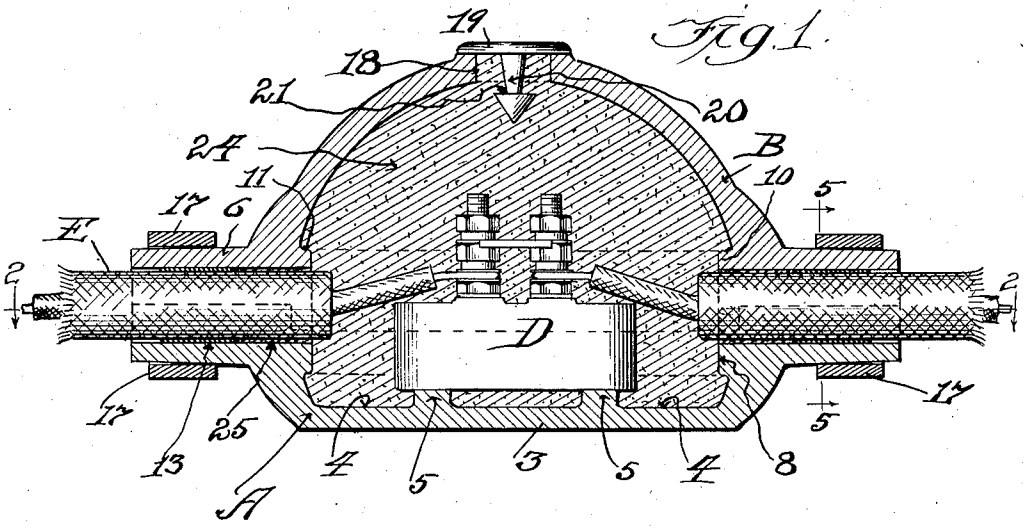

Fig. 2.

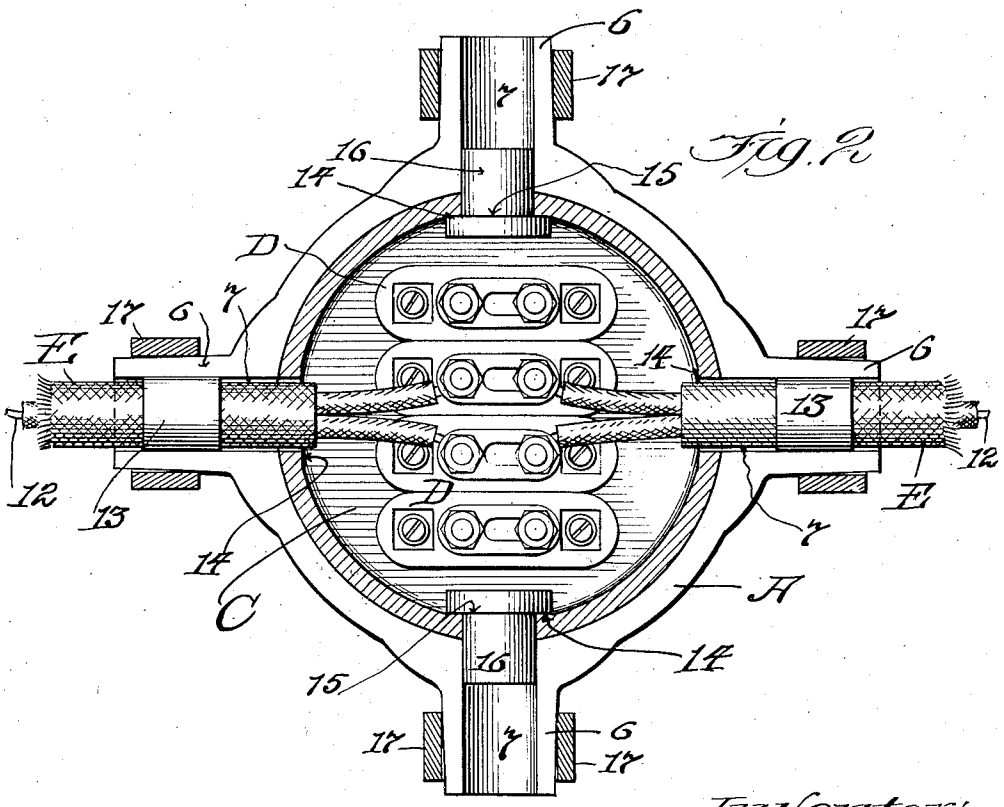

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Fig. 4.

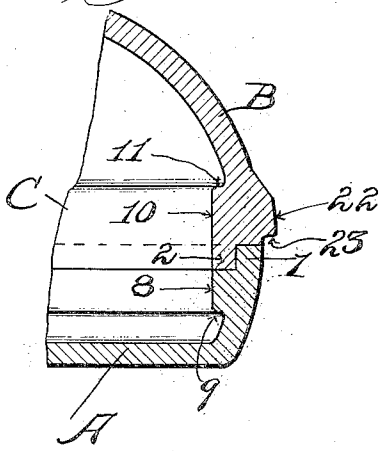


Fig. 5.

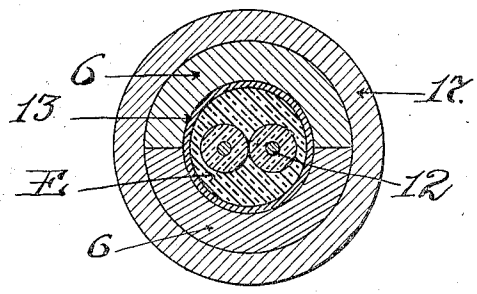
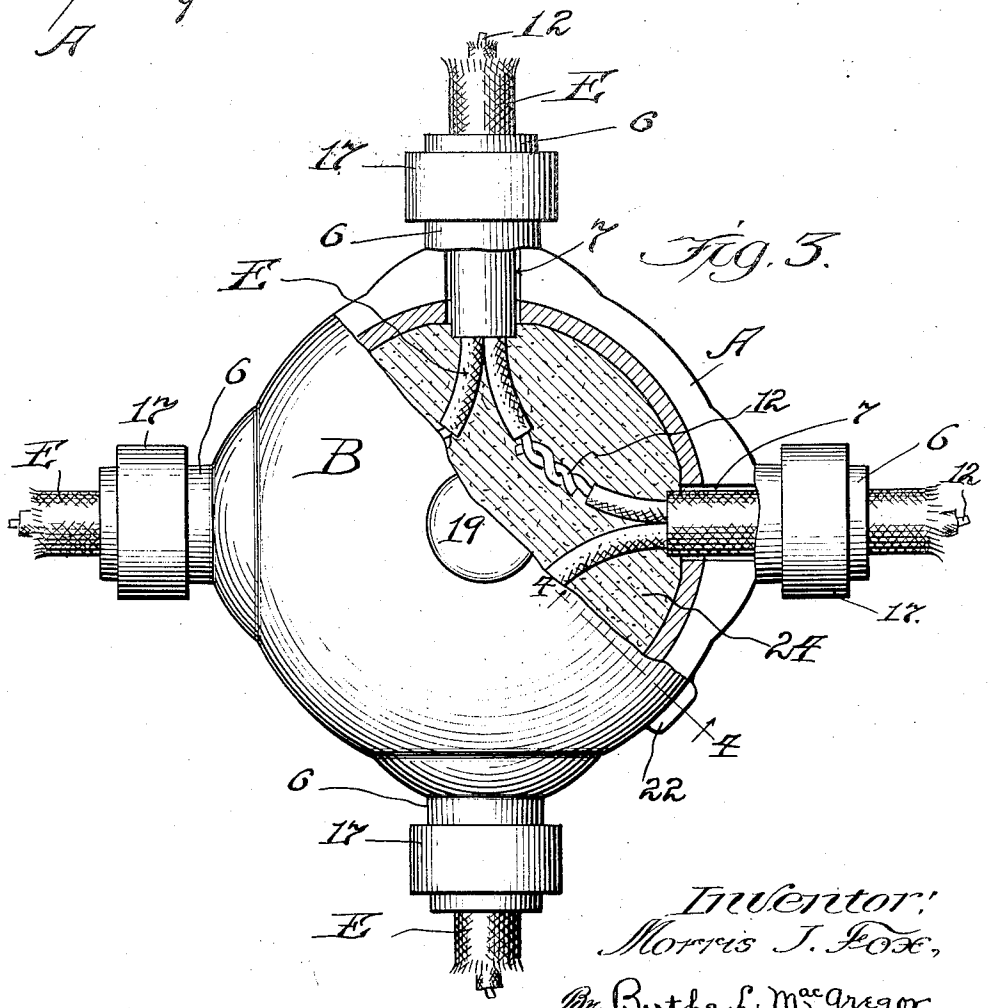


Fig. 3.



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Patented June 3, 1930 1,761,203

UNITED STATES PATENT OFFICE

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JUNCTION BOX

Application filed May 18, 1927. Serial No. 191,011.

This invention relates to junction boxes used in electrical systems.

The principal object of the invention is to provide a simple construction wherein the wire carrying cables of an electrical system may be led into and joined within the box and the box so closed and sealed as to exclude all moisture, when the box is located under ground or otherwise exposed to moisture.

Another object of the invention is to provide a construction wherein no bolts or screws are required. The use of bolts and screws in existing devices has been found very undesirable for the reason that they render the device less secure and also make it more difficult to disassemble the box in the event it is required to repair the parts.

The invention consists in the novel arrangement and combination of parts illustrated in the accompanying drawings, and hereinafter more fully described and pointed out in the appended claims.

In the drawings:

Figure 1 is a central, vertical sectional view of a junction box constructed in accordance with and embodying my invention.

Figure 2 is a horizontal plan view of the lower half of the box, a portion of the same being in section; and the section being taken on the horizontal plane indicated by the dotted line 2—2 of Figure 1.

Figure 3 is a top or plan view of the junction box, a portion being broken away to show a modified arrangement.

Figure 4 is a sectional view of a portion of the box, the section being taken in the vertical plane indicated by the dotted line 4—4 of Figure 3.

Figure 5 is a sectional view, enlarged, of one of the outlets of the box, the section being taken in the vertical plane indicated by the dotted line 5—5 of Figure 1.

As shown in the drawings, the box is composed of two major parts, substantially hemispherical, namely, the bottom member A and the top member B. These members are provided with complementally shaped, meeting faces by the annular flanges 1 and 2, respectively, as clearly shown in Figure 4. When the cover member B is placed upon the bottom member A, the box contains an interior chamber C into which the circuit wires are brought and united as desired. Preferably the bottom of the box is made with the flat base shown at 3, and the inner surface 4 of the base wall is preferably provided with raised up ribs 5, 5. When porcelain or other standard connecting pieces D are used, they will be supported above the surface 4 by resting upon said ribs 5, 5.

The hemispherical or dome shape of top member B is preferable but not absolutely necessary,—the only essential being that it should be so shaped that, when upon the bottom member A, the box will have an interior chamber C of the sufficient size to receive the parts that will be used with the box.

Each of the members A and B is provided with radially extending apertured lugs 6, the apertures being semi-circular as indicated at 7, and open into the interior chamber C. The apertures and lugs of the members A and B register, so that when the top B is placed upon the bottom A, the two apertures will form circular, radially arranged openings through the lugs 6 leading into the chamber C. As shown in the drawings, four such apertured lugs 6 are shown, but it will be manifest that two or any other number may be used.

The base member A is provided interiorly with an annular, inwardly extending rib member 8 of sufficient thickness to provide an annular shoulder 9. The top member B is similarly provided interiorly with an annular, inwardly extending rib member 10 of sufficient thickness to form an annular shoulder 11.

E represents the end of an armored cable carrying circuit wires 12 and it will be understood that the lug openings 7 will be made of sufficient interior diameter to receive the cables E. Generally such openings will be slightly larger than the cable E and in such event, a packing of lead or other material 13 may be used around the cable E.

The interior wall of both members A and B adjacent the recessed lugs 6 will be flattened instead of arcuate, thereby affording proper bearing surface 14 for the annular shoulder 15 on the plug 16, which latter will be in-

serted into the recessed lug 6 from the interior of the chamber C, to close the same when no cable E is used. In Figure 2, I have shown two oppositely arranged lugs 6, 6 as containing cables E, E and two closed by the plugs 16, 16.

I provide rings 17 for each pair of lugs 6, 6, which rings, when the two parts A and B are brought together, will be forced circumferentially about and lengthwise of the lugs to frictionally hold the members A and B together.

The top B of the box will be provided with an aperture or opening 18, preferably centrally thereof, which will be closed by a cap member 19; and said cap member 19 will be provided with an interiorly directed anchor stem 20 having an annular shoulder 21. At a convenient place on the top member B, preferably near the annular flange 2, is an outwardly directed lug member 22 provided with a shoulder 23.

From the foregoing description it will be understood, by those skilled in the art, that the cables E, E, surrounded by a suitable packing 13 and over which a lug ring 17 will have first been strung, are first laid in the apertures 7 of the lugs 6 and the wires 12 connected either as shown in Figures 1 and 2 to the connecting block D, or to each other, as shown in Figure 3. If all of the lugs 6 are not used for cables E, those not so used will be closed by inserting the plugs 16 as shown in Figure 2. The top B is then superposed upon the bottom A and rings 17 placed upon the registering lugs 6, 6 of the top and bottom members and driven thereon sufficiently to frictionally hold the top member B and the bottom member A together. There is then poured through the aperture 18, asphaltum or other suitable sealing material, such as indicated at 24, until the entire chamber C is filled. It will be understood, of course, that this sealing material 24 will extend outwardly into the lugs surrounding the cables E, E, as shown at 25, until it meets the inner edge of the packing 13. It will also be understood that the sealing material in filling the chamber C will also bear against the head of the plug 16 and hold the shoulder 15 thereof firmly against the bearing surface 14; and that it will fill the space between the ribs 5, 5, and intimately contact with the shoulders 9 and 11. Before the asphaltum or other sealing material is too cool, the cap 19 is positioned upon the top B to close the opening 18, the spear 20 entering the sealing material used, which, when it sets, will bear intimately against the shoulder 21 thereof and prevent the cap from being removed.

The box is now hermetically sealed so that there is no danger of moisture reaching its interior.

When necessary to add additional cables or to rearrange the connections, etc., a torch or other convenient heating means is applied to melt the asphalt or sealing material, the rings 17 are driven off the lugs 6, 6, and by the use of the lug 23 and top B is easily pried loose from the bottom A, affording access to the interior C, the sealing medium readily removed, the repair or desired change made, and then the box is closed and sealed as above explained, for further use.

It will be obvious that the flattened portion 14 of the interior wall of the members A and B is provided to make a proper bearing for the annular shoulder 15 of the plug 16 as shown in Figure 2, but if desired, this portion of the interior walls of the members A and B may be recessed to receive the shoulder 15.

I prefer to use the rings 17 to hold the lugs 6 of the members A and B tightly together. However, after the sealing material 24 has become set the parts will be maintained in the desired closed position without the rings 17. It is obvious, therefore, that any temporary method of holding the parts securely together until the sealing material becomes thoroughly hardened, may be resorted to and the rings 17 be dispensed with.

While I have shown the upper member B as being dome-shaped, it is obvious that a different form of top might be used but I prefer the arched form particularly because it avoids inner corners or pockets wherein air might be confined after the sealing material had been poured into the chamber C.

I claim as my invention:

1. A junction box for electrical systems, comprising a two part housing, the meeting edges of the two housing members being complemental, a plurality of outwardly and inwardly extending lugs substantially semi-circular in cross section on each housing member adapted to co-act with the lugs on the other to form passageways into the housing interior for cable wires, locking rings for frictionally engaging the outwardly extending portions of said co-acting lugs, and a sealing medium within said housing and embracing the inwardly extending portions of said lugs.

2. A junction box for electrical systems, comprising a two part housing, the meeting edges of the two housing members being complemental to each other and each member having an annular shoulder extending inwardly into the housing, a plurality of outwardly extending lugs on each housing member adapted to co-act with the lugs on the other member to form a passageway into the housing interior for cable wires, a sealing medium within the housing in engagement with said annular shoulder, and locking rings for frictionally engaging said co-acting lugs.

3. A junction box for electrical systems, comprising a two part housing, the meeting edges of the two housing members being com-

plemental, a plurality of outwardly extending lugs on each housing member adapted to co-act with the lugs on the other to form a passageway into the housing interior for cable wires, the interior of the housing adjacent the inner ends of said lugs being flattened, removable plugs insertable into the passageways in said lugs and adapted to engage the flattened portions of said housing, and locking rings for frictionally engaging the exterior surfaces of said co-acting lugs.

4. A junction box for electrical systems, comprising a two part housing, the meeting edges of the two housing members being complemental, a plurality of outwardly and inwardly extending lugs on each housing member adapted to co-act with the lugs on the other to form a passageway into the housing interior for cable wires, locking rings for frictionally engaging the outwardly extending portions of said co-acting lugs, one of the housing members being apertured through its body portion for introduction of a sealing medium in the housing for embracing inwardly extending portions of said lugs, and a closure cap for the aperture in the housing, said cap having a headed stem adapted to be embedded in the sealing medium.

5. A junction box for electrical systems, comprising a two part housing, the meeting edges of the two housing members being complemental to each other and each member having an annular shoulder extending from the inner surface, the housing being apertured to accommodate cable wires extending into the housing interior, and a sealing medium within the housing in engagement with said annular shoulders.

6. A parkway cable junction housing comprising a dished bottom section, provided on its bottom with terminal block holding ribs extending transversely in spaced relation with each other whereby the terminal block is supported in spaced relation with the bottom of the bottom section and sealing compound permitted to flow beneath the terminal block and an anchoring relation with the compound provided, a cover section provided with depending sides adapted to lap the sides of the bottom section, the cover section being provided with a sealing compound receiving opening at top, the bottom and cover sections being provided with complementary channeled lobes extending outwardly therefrom to provide cable receiving necks, and means cooperating with said lobes to lock the sections together.

7. A parkway cable junction housing comprising a dished bottom section, a cupped cover section having a sealing compound receiving opening at top, both sections having inner walls sloping toward the juncture of the sections and each provided on the interior with an offset surface extending into a plane removed from the main wall of the section and to be embedded in the sealing compound and thereby lock the sections together, both sections being provided with complementary channeled lobes extending outwardly therefrom to provide cable receiving necks.

In testimony, that I claim the foregoing as my invention I affix my signature this 9th day of May, 1927.

MORRIS J. FOX.