Nov. 24, 1959 J. K. BALES 2,914,279

UNIVERSAL SERVICE DROP CONDUIT BRACE

Filed March 11, 1958

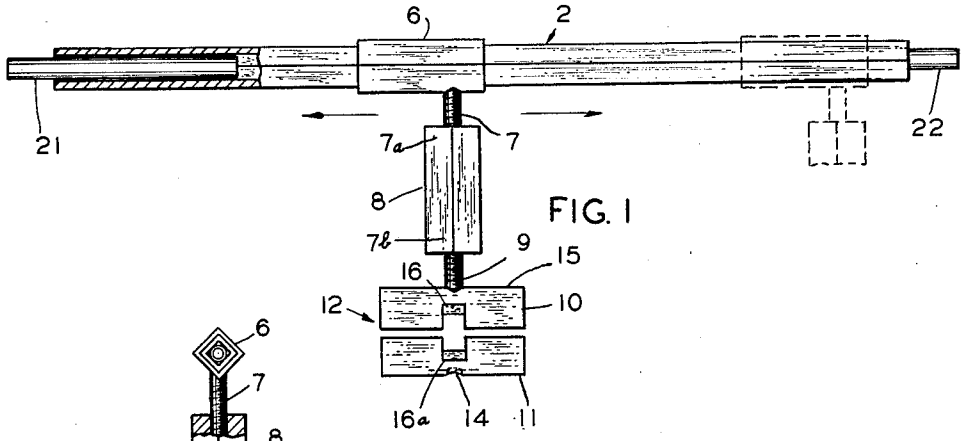


FIG. 1

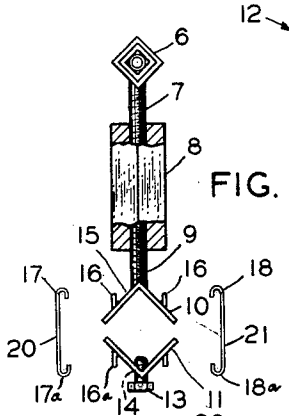


FIG. 2

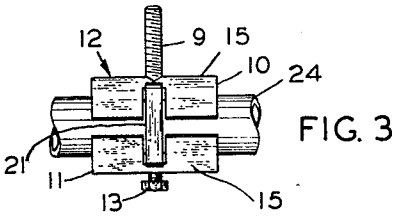


FIG. 3

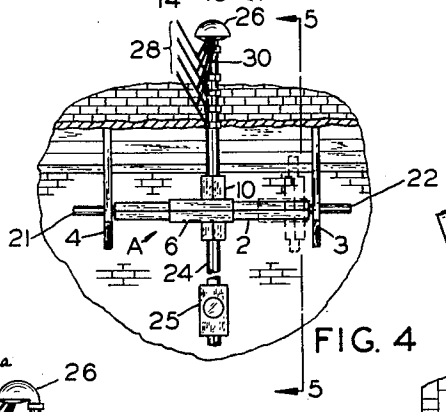


FIG. 4

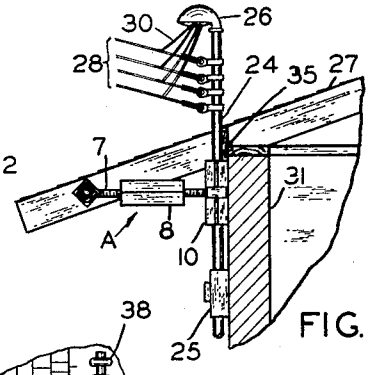


FIG. 5

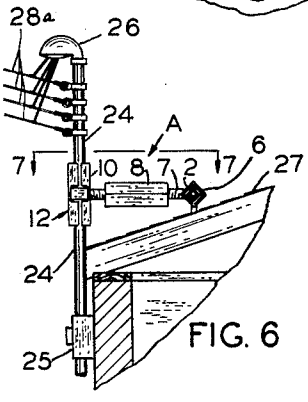


FIG. 6

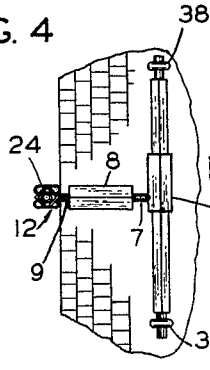


FIG. 7

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UNIVERSAL SERVICE DROP CONDUIT BRACE

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3 Claims. (Cl. 248—49)

This invention pertains to universal rigid conduit brace.

More particularly, this brace is for use in installing and holding service drops wherein a vertical conduit is used to support the wires from the pole and as a support for a weather head through which the wires from the service drop enter the service entrance conduit and thence extend to the meter socket. Heretofore there have been many devices suggested to secure the service drop conduits more efficiently and to save time of the workmen on the job. However, none of these devices have proved altogether satisfactory and in view of this I have produced a brace which is adaptable to various types of house structure and to many positions of the various service drops and in this sense is universal.

One of the objects of the invention is to provide a brace which can be immediately used by an electrician installing an electrical service entrance so that the vertical conduit will be held in a secure position resisting the strain of the service laterals where the installation is on the side of a roof of the hip type or gable type; said brace being adapted for installation between the rafters and beneath the eaves with a point of support outside of the position of the conduit;

Another object is to provide a brace, above-mentioned, wherein the conduit of a service drop can be supported on houses or other structures that do not have any overhanging eaves on which to anchor or support the brace; said brace being installed inwardly from the vertical conduit and being adapted to pull against the tension of the lateral service wires from the service pole;

Still another object is to provide a brace for the vertical conduits of service drops which has a pivotally supported bar shaped body with a sliding sleeve threaded to receive one end of a turn buckle which is adapted to either pull or push a clamp which is attached to a vertical conduit; said clamp having a threaded stud on one side and a tapped hole on the other side for attachment to various clamping accessories;

Other objects will appear hereafter.

I attain the foregoing objects by means of the devices, parts, combinations of parts shown in the accompanying drawings in which:

Figure 1 is a plan view of the assembled universal brace;

Figure 2 is an end elevational view thereof;

Figure 3 is a vertical side elevational view of the clamp end of said brace;

Figure 4 is a front elevational view of a service drop installation applied to the side of a building having rafters and overhanging eaves;

Figure 5 is a side elevational view of the installation shown in Figure 4 taken substantially on line 5—5 of Figure 4;

Figure 6 is a side elevational view of a service drop installation as applied to a building having roof structure with no eaves and with the brace pulling against the tension of the service lateral; and

Figure 7 is a plan view of the installation shown in Figure 6, with the conduit sectioned off on line 7—7 of Figure 6.

Similar numerals refer to similar parts in several views.

The brace consists essentially of a length of square rigid conduit tubing 2. This is approximately 30" long, or may be said to be as long as the distance between the adjacent faces of the roof rafters of the house on which the service drop is to be installed. The rafters are indicated by numerals 3 and 4 in Figure 4.

A squared sleeve 6 slides freely on the outside of tube 2. This sleeve is provided with a threaded boss 7 which extends outwardly from one of the edges of the sleeve near one end. In the present form the threads on the boss are made left handed. A turnbuckle nut 8 is made from a length of square metal rod. This is bored longitudinally through its center. This bore is tapped with left hand threads at the end 7*a* to receive the threading on the boss 7 and is tapped at the other end 7*b* to receive the right hand threads of boss 9 which is on the inner clamp part 10.

The clamp 12 is composed of the inner part 10 and the outer part 11, both parts being made from short lengths of angle iron. It is to be noted that the boss 9 extends outwardly from the center of the corner edge of clamp part 10. Clamp part 11 is the counterpart of part 10 and has a tapped hole located centrally of its angle edge, to receive set screw 13. The tapped hole is indicated by numeral 14. The threads of this hole are of the same size and pitch as those on boss 9.

In the center of the side edge 15 of each clamp part a portion of each edge is turned back toward the angle edge to form tabs 16. These tabs are disposed to receive the folded hooks 17 and 18 of binders 20 and 21. Hooks 17*a* and 18*a* on the lower ends of these binders engage tabs 16*a* on the outer or lower clamp part 11. In Figure 2 the clamp parts are shown in expanded form in order to illustrate the structure more clearly. However, the clamp as assembled is shown in Figure 3.

In the installation shown in Figure 4 the brace A is held in position between rafters 3 and 4 by means of rods 21 and 22 which are inserted through holes in the rafters and into the ends of the squared tube 2. This forms a pivotal support for the brace so that the clamp and turnbuckle may be extended at a suitable angle from the axis of rods 21 and 22 so that clamp part 10 will bear flatly against the side of conduit 24.

It is to be understood that conduit 24 is positioned vertically and extends from the meter socket 25 at the bottom to the weather head 26 at the top. The conduit exends above the roof 27 a sufficient distance to allow the separate attachments of the service laterals 28 with adequate room for the installation of the service connectors 30.

With the service laterals 28 tending to pull the top of conduit 24 outwardly from the building wall 31 it is necessary to provide support for the top portion of the conduit. This is done by the brace assembly indicated by the letter A. With the brace tube 2 supported on the rods 21 and 22 as above stated, the squared sleeve 6 is moved until the boss 7 is aligned with the center of conduit 24. The turnbuckle nut 8 is then threaded onto the boss 7 and the boss 9 of clamp part 10 started on the turnbuckle nut 8. The parts are adjusted by operation of the nut 8 until clamp part 10 bears on the conduit. The open angle of this clamp part centers on the conduit. The opposite side of the clamp may be placed between the conduit and the wall 31 as shown in Figure 5 in order to hold the conduit out from the wall a slight distance. Otherwise if the conduit is bedded against the wall plate ceiling strip 35 the inner clamp part 15 may not be necessary in this installation. With the parts in place, as above stated, the turnbuckle nut 8 is rotated in a direction

to force the clamp part **10** against the conduit at one end and the sleeve **6** against the tube **2** at the other end. This force is entirely adequate to counteract the pull of the service laterals **28**.

In the installations shown in Figures 6 and 7 the tube **2** is placed above the roof and the rods **21** and **22** are inserted through eye type insulators **37** and **38** which are installed on the roof. The sleeve **6** is then slid along tube **2** until the boss **7** is aligned with the center of the conduit **24** and the clamp **12** is applied to the conduit at the level of the axis of tube **2**. The turnbuckle nut is installed as before and rotated to create a pulling tension on the clamp. This pulls on the conduit **24** against the service laterals marked **28***a* in Figure 6. The turnbuckle furnishes adequate stress to offset the pull of the laterals.

From the foregoing it will be understood that I have provided a combination brace that is adapted to many different installations and I, therefore, term it a universal conduit brace. While I have illustrated only two assemblies of the brace, those familiar with the art will easily understand that many different variations of the installations illustrated may be made and with slight additions this type of brace may be used on many other different types of structures without substantial alterations. It is to be understood that the brace bar or tube **2** is of square section so that the strain, either pushing or pulling can be directed across the section diagonally. Therefore, the threaded boss **7** is placed on an edge corner of the sleeve **6**. This makes a much stronger assembly than if circular tubing was used. It is important that the brace **2** be pivotally supported along its longitudinal axis. The tubes **21** and **22** accomplish this, and, therefore, these rods extend into two spaced points of support on the building or dwelling. Thus, in Figure 4, the points of the support are the rafters **3** and **4**, while in Figure 7 the points of support are the eye insulators **37** and **38**. Note that the threaded boss **7** is located near one end of sleeve **6**. This enables the boss to be aligned with the conduit **24** even though it happens to be close to a rafter, such as **3**. The sleeve can then be slid close to the rafter as indicated by the dotted outlines in Figure 4. The squared nut **8**, which is part of the turnbuckle assembly including the threaded boss **7** and threaded boss **9**, may be of any length desired. Since it has a squared section it is easily turned with a wrench. Any metal bar having opposite flat faces may be used instead of the squared section, as shown.

Heretofore workmen installing these electrical parts had to build special installations to hold conduits in place. That is, a wooden brace was often used between rafters **3** and **4** as shown in Figure 4 and then a short length of material, usually wood, was cut and fitted to bear against the side of the conduit. This work took considerable time and required hand fitting of various parts and was, therefore expensive. Also, being made of wood, the installation was subject to decay. The present brace is cheap and easy to make and is strong and permanent when installed. The peculiar shape of the slide on the rigid conduit tubing **2** and the installation of the double acting turnbuckle in combination with the clamp provide a very flexible and universal installation suitable for the purposes intended.

I claim:

1. A brace for supporting vertical conduits of service drops and bracing the conduit against the strain of lateral service wires, composed of a rigid brace tube having a square cross-section adapted to fit between the rafters of a building, rods extending through said rafters and into the ends of said tube, providing pivotal support for said brace tube, a slide of square tubing on said brace tube having a threaded boss near one end extending outward from one longitudinal edge, a turnbuckle nut screwed into said boss, a two part clamp adapted to secure said service drop vertical conduit having a threaded boss adapted to screw into the end of said turnbuckle nut opposite the boss on said slide; said turnbuckle nut being operative on said bosses to provide thrust and tractive tension on said conduit.

2. In building structure, a brace to take the strain of lateral service wires for vertical conduits of electrical power service drops, consisting of a rigid tube having a square cross section, support pins slidably inserted in each end of said tube adapted for insertion in openings in spaced supporting elements on said building structure to afford rotary support for said brace tube, a sleeve having a square cross section slidably supported on said brace tube, and having a threaded boss extending outward from an edge corner of said sleeve adapted to screw into a turnbuckle nut, a clamp to attach to said service drop conduit having a jaw with an outwardly extending threaded boss adapted to screw into a turnbuckle nut, and a turnbuckle nut having a longitudinal bore tapped at each end with right and left threads, respectively, one end of said turnbuckle bore being threaded onto the boss extending from said sleeve, and the opposite end of said bore being tapped to receive the boss extending from said clamp jaw.

3. A brace for attachment to a building structure to brace a vertical conduit of an electrical power service drop consisting of a rigid brace tube having a square cross section, supporting rods inserted in each end of said tube to provide pivotal means of support on spaced supporting portions of said buildings a sleeve having a square cross section slidably supported on said brace tube, and having an outwardly extending threaded boss, a clamp having jaws consisting of lengths of metal having angle shaped cross sections, joined on each side by **C** shaped hooks one of said jaws having an outwardly extending threaded boss, and a turnbuckle including an elongated nut, having opposed flat sides to aid turning, operatively connected between the boss on said brace sleeve and the boss on said clamp jaw, and threaded onto said bosses on said sleeve and clamp.

References Cited in the file of this patent

UNITED STATES PATENTS

552,951	Bower	Jan. 14, 1896
2,060,046	Giacomo	Nov. 10, 1936
2,222,269	Sigmond	Nov. 19, 1940