No. 702,662. Patented June 17, 1902.

R. W. LYLE.

CONDUIT FOR ELECTRIC WIRES OR CABLES.

(Application filed Apr. 10, 1902.)

(No Model.)

Fig. 1.

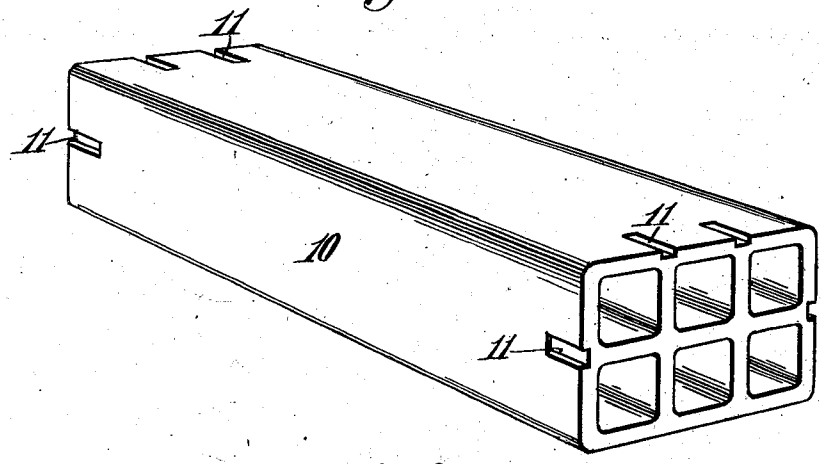


Fig. 2.

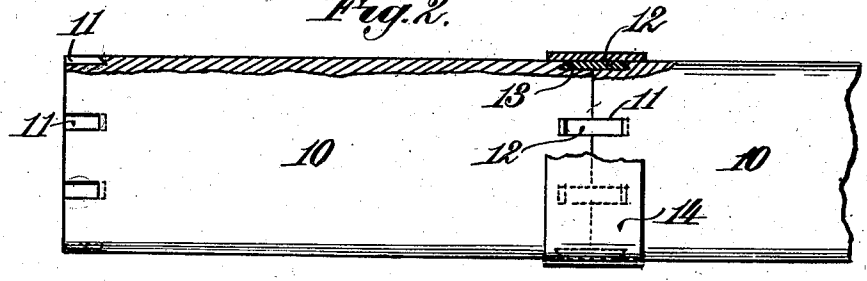


Fig. 3.

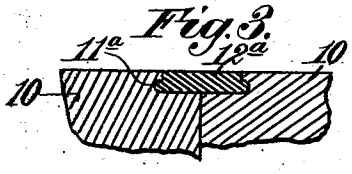


Fig. 4.

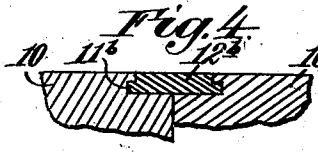


Fig. 5.

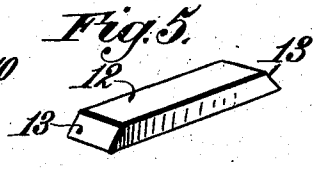


Fig. 6.

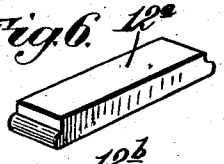


Fig. 7.

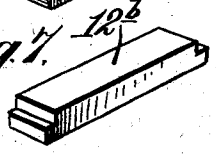
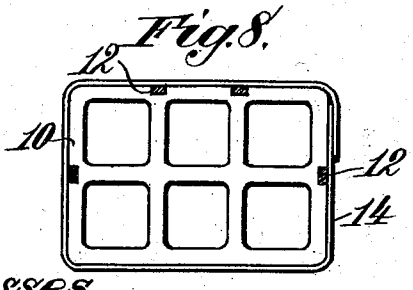


Fig. 8.



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UNITED STATES PATENT OFFICE.

ROBERT W. LYLE, OF PERTH AMBOY, NEW JERSEY.

CONDUIT FOR ELECTRIC WIRES OR CABLES.

SPECIFICATION forming part of Letters Patent No. 702,662, dated June 17, 1902.

Application filed April 10, 1902. Serial No. 102,169. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. LYLE, a citizen of the United States, residing at Perth Amboy, Middlesex county, New Jersey, have invented certain new and useful Improvements in Conduits for Electric Wires or Cables, of which the following is a specification.

This invention relates to conduits of that class generally employed in underground electrical work, in which use they are intended for incasing wires, cables, or like conductors; and the invention primarily secures simple and highly-efficient means for locking and alining the respective sections of such conduit.

The conduits ordinarily used have one or more openings, recesses, or seats in the webs or partitions thereof in which dowel-pins or their equivalents are seated, the said pins being adapted to enter registering or coinciding openings in the abutting ends of the said sections, being thereby intended to lock the same in alinement. A conduit thus made, however, possesses several serious disadvantages, chief among which is the structural weakening of its sections by the formation of such holes, seats, or recesses therein in the manner set forth, which renders them exceedingly liable to breakage at or in adjacence to such holes, openings, or seats, and more particularly when they are stacked up or are being transported. It has been the practice to form these holes or openings in the conduits while the clay composing the same is in a semiplastic condition—that is, before it is burned or fired. When this latter operation is concluded, it is found that the partitions are frequently warped and at times to such an extent that when the dowel-pins or their equivalent are introduced they cannot be brought into absolute parallelism, thereby rendering the making of a close joint between and consequent alinement of the respective sections an exceedingly difficult and laborious matter. It is also evident that by reason of the location of these dowel-pins they are very difficult to reach when the sections are being connected, so that considerable time is thereby outlaid in forming the joint even if the pins project exactly straight from the ends of the sections. It will be understood that when making these joints the ends of the sections are very close together, about two or three inches, so that the hands of the workman cannot be very well thrust between the same. By my invention, however, these existing defects are wholly overcome, and a conduit constructed in accordance with my invention can be as cheaply and more easily made than the kind to which I have hereinbefore alluded, and the improved article, which in the form thereof represented in the accompanying drawings has one or more external grooves, is not appreciably weakened by the presence of such grooves.

It will be obvious from the following description and accompanying drawings that my improved conduit involves external locking and alining means for its respective sections, which may be of any desirable character.

In my copending application filed of even date herewith and having Serial No. 102,168, I have shown and described a conduit-section having external grooves at its opposite ends, the longitudinal side walls of which are undercut or beveled, and a coöperating centering and locking key having its longitudinal edges beveled or shaped to correspond with the grooves in the conduit-sections. My present invention differs from that disclosed in the aforesaid application in that the end walls of the grooves are undercut or beveled instead of the longitudinal side walls, and likewise the centering and locking keys have their opposite ends beveled or shaped to correspond with said beveled or undercut end walls of the grooves.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a conduit-section embracing my invention. Fig. 2 is a side elevation, partly in section, of a conduit, showing the sections thereof in alinement and an envelop about one of the joints between the sections thereof. Figs. 3 and 4 are sectional elevations of modified forms of key and seat. Figs. 5, 6, and 7 are perspective views of such keys. Fig. 8 is an end view of a conduit-section, the keys being shown in section.

Like characters refer to like parts in all the figures.

The conduit-section is denoted in a general way by 10, and it may be made of the substance usually employed for this purpose, and it has one or more interior passages or chambers extending the entire length of the same, as is customary, which are adapted to receive electric wires, cables, or the like. The said conduit-section is rectangular in cross-section,

or substantially so; but the invention is not limited in this respect, for the sections may be of other shapes.

As hereinbefore pointed out, the sections of a conduit are customarily alined by dowel-pins set into holes in the partitions of the same, such holes when the sections are coupled being brought into register, the holes in some cases extending the complete length and in others only a part of the length of the sections; but, as has been stated, these possess several drawbacks. My improvement contemplates the locking and alining of the respective sections of the conduit by external means, the same in the present instance involving one or a plurality of grooves upon the outer surface thereof, and these grooves, unlike the dowel-pin holes, do not appreciably weaken the structure and located as they are are readily accessible during the union of the sections.

Referring to Fig. 2, it will be seen that the conduit-section there represented has a plurality of longitudinal grooves 11 on each of its sides at each end, while in the form shown in Figs. 1 and 8 these grooves are on only three of the sides. In fact this is not essential, although I prefer to have the grooves on at least three of the sides. In like manner I may use only one groove at an end on each side of the conduit, and I consider such a construction within the scope of the invention. It will be seen that the respective grooves are arranged in parallelism directly opposite the partitions of the section and on reference to Fig. 1 that they extend simply a part of the length of the section 10 and that one end of each groove is open, while the other end is closed, so that when a connector or key, hereinafter more particularly described, is inserted in said open end it can be moved backward until it meets said closed end, whereby it is firmly held against longitudinal displacement in an inward direction. I prefer to undercut or bevel the end wall 11 of the grooves, which can be accomplished in several different ways, as will hereinafter appear, so that when a connector or key of corresponding cross-section is fitted therein it is firmly interlocked therewith and cannot possibly slip out sidewise when the sections are joined.

The grooves upon the exterior of the conduit-section 10 are adapted to receive keys, as 12, (shown in detail in Fig. 5,) and it will be seen on reference to this figure and also to Fig. 2 that the end walls of the key are beveled, as at 13, so that they are maintained in place by a dovetail joint. These keys, it will be understood, are seated in complemental grooves or keyways registering with each other at the abutting ends of the sections 10 when the latter are assembled, the keys overlapping the joints between the sections on several sides thereof, and as the keys are locked firmly in position and as they are preferably upon three of the sides of the sections the latter are held securely in alined relation. In laying the conduits the keys 12 are first inserted in the grooves in one of the sections thereof, and the coöperating section is brought with its end in proximity to the first section, and the free ends of the keys are introduced into the grooves of said second section and the two parts are then moved into contact, each key, as will be understood, being seated for about half its length in registering grooves in the engaging ends of the respective sections and its ends abutting against the closed ends of such registering grooves. The keys may be made of any suitable material and shape, one desirable form thereof having been described. In Figs. 3 and 6 the end wall of the grooves 11^a and hence the end walls of the key 12^a are of ogee form, while the end of the groove or keyway 11^b (shown in Figs. 4 and 7) is stepped or angular in its cross-section, its key 12^b being of similar shape, and it will be seen that in each case the grooves are so formed that the undercut end wall thereof is preserved.

The conduit at the junctions of its respective sections is enveloped or wrapped by sheets of asbestos, tarred cloth, or analogous sheet material, as 14, so as to assure close joints at these places, as shown by Figs. 2 and 8.

The invention of course can be modified within the scope of the appended claims.

What I claim, and desire to secure by Letters Patent, is—

1. A conduit-section having a longitudinal external groove, the end wall of which is undercut.

2. A conduit-section having a longitudinal external groove, the end wall of which is beveled inward.

3. A conduit-section having a longitudinal external groove opening into one end thereof, the closed end wall of the groove being undercut, and a key having an end shaped to fit in said undercut end wall.

4. A conduit the sections of which have registering external grooves the end walls of which are undercut, and a key fitted in each groove; the ends of the key being shaped to enter the undercut end walls of the groove.

5. A conduit the sections of which have registering external grooves the end walls of which are beveled, and a key fitted in each groove and bridging the abutting ends of the sections, the opposite ends of the key being beveled to fit under the beveled end walls of the grooves.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT W. LYLE.

Witnesses:
EDGAR W. WILLIAMS,
ELISABETH WATTERS.