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Patented Aug. 12, 1902.

R. W. LYLE.  
CONDUIT FOR ELECTRIC WIRES.

(Application filed Apr. 10, 1902.)

(No Model.)

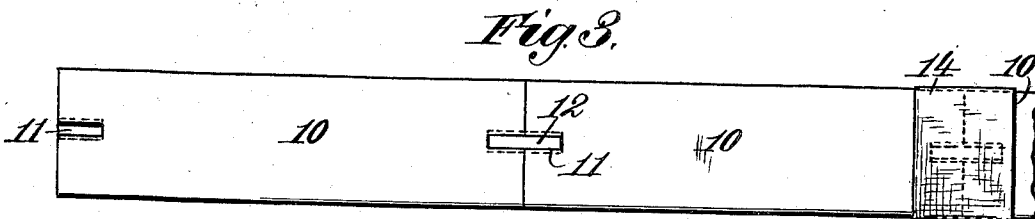
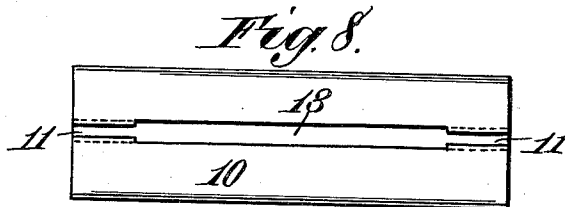
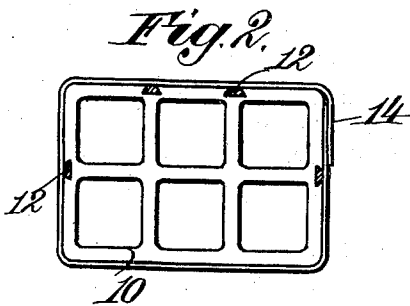
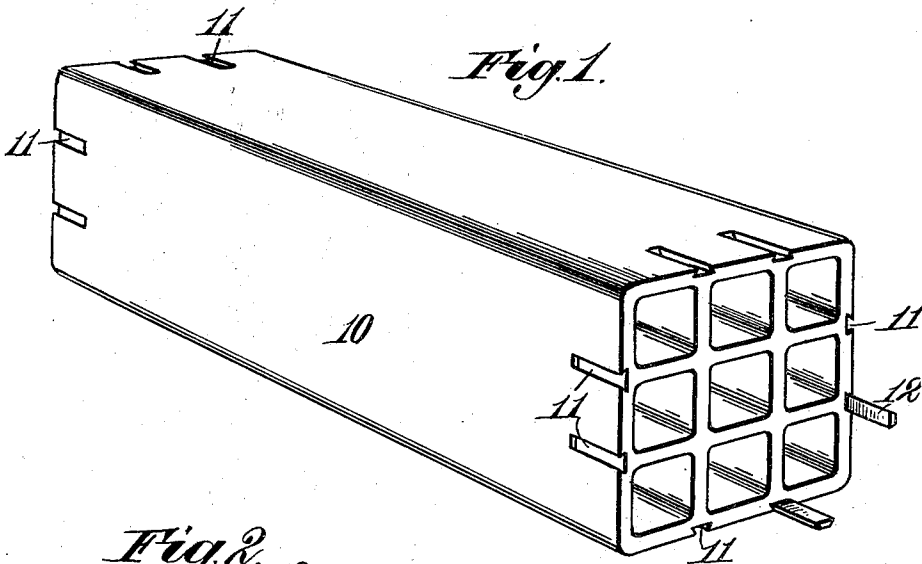


Fig. 4



Fig. 6

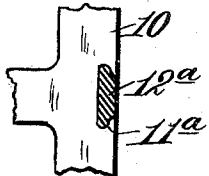
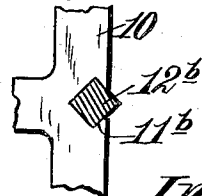


Fig. 7



Witnesses:  
Albert Bennett  
J. Hamilton Meyer



Inventor:  
Robert W. Lyle.  
By G. H. Hallett Davis  
Att'y.

# UNITED STATES PATENT OFFICE.

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

## CONDUIT FOR ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 706,974, dated August 12, 1902.

Application filed April 10, 1902. Serial No. 102,168. (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, New Jersey, have invented certain new and useful Improvements in Conduits for Electric Wires, 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 adjacency 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 semi-plastic 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 equivalents 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 outlayed 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 sec-

tions 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 made and more easily 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, therefore, that my improved conduit involves, broadly, external locking and alining means for its respective sections which may be of any desirable character.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a conduit, or rather section thereof, embracing my invention. Fig. 2 is an end view of a slightly-modified form of the same. Fig. 3 is a side elevation of a conduit, showing the sections thereof in alinement and an envelop about one of the joints between the sections thereof. Fig. 4 is a sectional elevation of a key and its seat. Fig. 5 is a perspective view of such key. Figs. 6, 7 and 8 are views corresponding with Fig. 4 and show different forms of key and seat, and Fig. 8 is a side elevation of a different form of 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 other only a part of the length of the sec-

tions; 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. 1, 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 Fig. 2 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, as shown, for example, in Fig. 2. It will be seen that the respective grooves are in parallelism 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 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 slid backward until it meets said closed end, whereby it is firmly held against longitudinal displacement in an inward direction.

I prefer to undercut the side or longitudinal walls of the several grooves 11, 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.

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. 4 that the side walls of the key are beveled, so that they are maintained in place by a dovetail joint. These keys, it will be understood, are seated in complementary grooves or keyways registering with each other on 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 solidly in alined relation.

In laying the conduits the keys 12 are first inserted in the grooves in one of the sections thereof, and the cooperating 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 Fig. 6 the sides of the groove 11<sup>a</sup>, and hence of the key 12<sup>a</sup> thereof, are of ogee form, while the groove or keyway 11<sup>b</sup> (shown in Fig. 7) is rectangular in cross-section, its key 12<sup>b</sup> being of similar shape, and it will be seen that in each case the grooves are so formed that the undercut side walls thereof are preserved.

In some cases the grooves at the ends of the section 10 may be united by a channel 13. The walls of the channel are straight, and said channel equals or approximately equals in width the widest part of the grooves 11, so that a key can be slipped into said channel between the grooves and slid in either direction into one of said grooves and into a corresponding groove in an abutting section. By this construction it will be seen that the sections 10 can be first placed end to end and the keys afterward put in; but means will be necessary to hold the keys against longitudinal movement, which is not necessary with the form shown in the other views.

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 3.

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

Having described the invention, what I claim is—

1. A conduit-section having a relatively short external groove in its side wall at an end of the section, one end of said groove being closed and the other end opening into the end of the section, and the side walls of said groove being undercut, substantially as described.

2. A conduit-section having short external grooves at its opposite ends, one end of each groove being closed and the other end opening into the end of the section, the side walls of said grooves being undercut, substantially as described.

3. A conduit-section having a relatively short external groove in its side wall at an end of the section, one end of said groove being closed to form an abutment for a key, and the other end opening into the end of the section, and the side walls of said groove being beveled.

4. A hollow conduit, comprising abutting tile sections, each section having relatively short external grooves at its opposite ends, one end of each groove being closed and the other end opening into the end of its respective section, and the side walls of the grooves being undercut, and a key having side walls shaped to correspond with the undercut side walls of the grooves, the said keys being fitted in the grooves of abutting tile sections in such manner as to bridge the joint between said sections, the closed ends of the grooves

acting as stops to prevent the keys from moving longitudinally.

5 5. A hollow conduit, comprising abutting tile sections, each section having a relatively short external groove at its opposite ends, one end of each groove being closed and the opposite end opening into the end of its respective section, and the side walls of the groove being beveled, combined with a key  
10 having beveled side walls to take under the beveled side walls of the grooves, the said keys being fitted in the grooves of abutting

sections in such manner as to bridge the joint between said sections, the closed ends of the grooves constituting stops to prevent longitudinal movement of the keys. 15

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

ROBERT W. LYLE.

Witnesses:

EDGAR W. WILLIAMS,  
ELISABETH WATERS.