

(No Model.)

F. DAVIS & R. E. B. CROMPTON.
MEANS FOR PROTECTING UNDERGROUND ELECTRICAL CONDUCTORS.
No. 562,808.

Patented June 30, 1896.

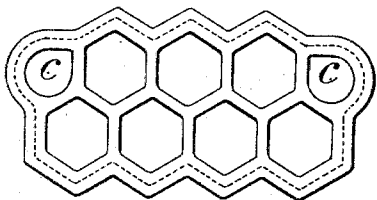


FIG. 5.

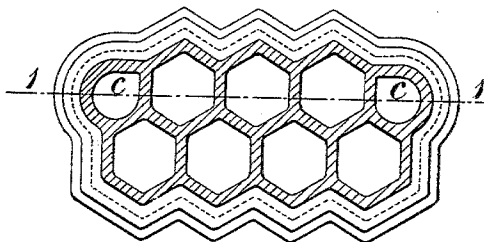


FIG. 1.

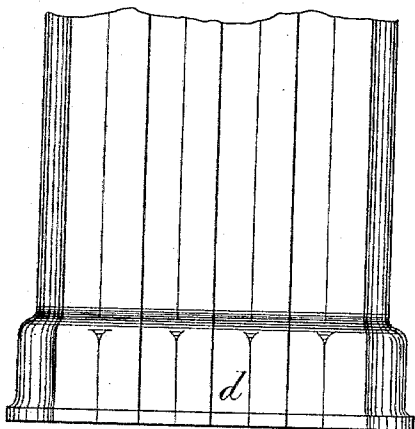
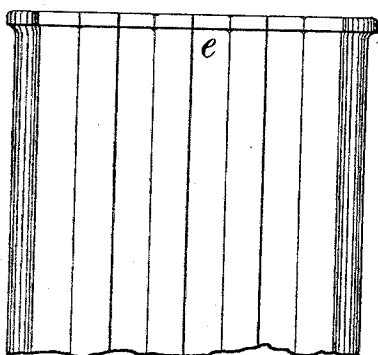


FIG. 2.

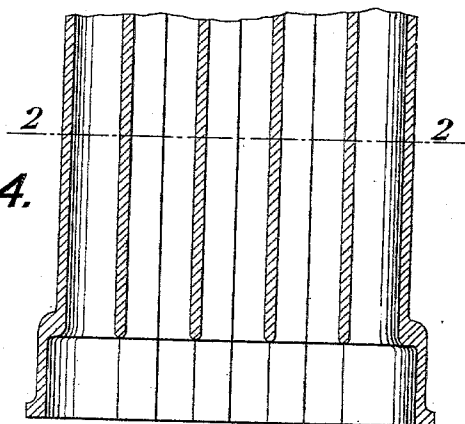
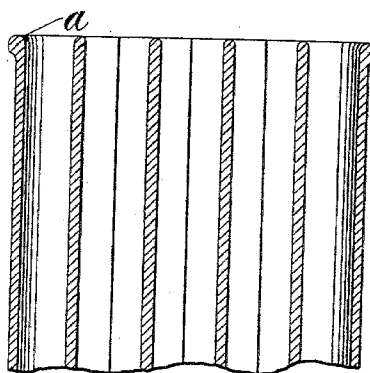
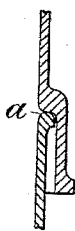


FIG. 3.

FIG. 4.



Witnesses.

A. M. Cole
Le. W. Davis

Inventors.

Fredrick Davis.
Robert Evelyn Bell Crompton
By John J. Macleod for
their Attys

UNITED STATES PATENT OFFICE.

FREDERICK DAVIS AND ROOKES EVELYN BELL CROMPTON, OF LONDON,
ENGLAND.

MEANS FOR PROTECTING UNDERGROUND ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 562,808, dated June 30, 1896.

Application filed April 11, 1893. Serial No. 469,952. (No model.) Patented in England February 1, 1892, No. 1,878, and in Belgium May 6, 1893, No. 104,590.

To all whom it may concern:

Be it known that we, FREDERICK DAVIS, engineer, of Palace Chambers, Westminster, and ROOKES EVELYN BELL CROMPTON, engineer, of Mansion House Buildings, in the city of London, England, subjects of the Queen of Great Britain, have invented certain new and useful Improvements in Means or Apparatus for Protecting Underground Electrical Conductors, (patented in Great Britain February 1, 1892, No. 1,878, and in Belgium May 6, 1893, No. 104,590;) and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention consists in substituting for the pipes or groups or bundles of pipes or other channels of iron or other material into which or through which electric conductors are laid or drawn cellular cases, preferably made of cast-iron, divided longitudinally into triangular, square, or polygonal passages, preferably hexagonal, arranged in such a manner that the whole cellular casing forms a casting of great lightness and strength, capable of resisting severe lateral strains and of such construction as to insure sound castings. We form our casing of a series of lengths of the castings, each casting having within it the longitudinal cells, openings, or ways through which the conductors or cables may be drawn.

In the accompanying drawings, Figure 1 shows a seven-channel casing with two subsidiary ways *c c* by a cross-section on the line 2 2 of Fig. 3. Fig. 2 shows an outside plan view of a casing, *d* being the socket and *e* the spigot; and Fig. 3 shows a longitudinal section through the same on the line 1 1 of Fig. 1. Fig. 4 is a longitudinal section of a portion of one side of the metal of a spigot end and a socket end to show how they respectively fit. Fig. 5 is an end view of the spigot part of the conduit.

In Figs. 3 and 4 the rounding out of the angles of the socket and spigot ends of the channels is clearly shown at *a a*.

Although in the drawings we have selected a conduit or casing of seven chambers and two subsidiary ways, other number of chan-

nels and ways may be embodied in each single length of conduit or the subsidiary ways may be dispensed with. The hexagonal form of channel is that we find most generally useful, but the form of the section of channel may be varied to suit circumstances so long as the assembled channels admit of a substantially uniform thickness of metal being retained throughout the casing.

The casings are made preferably with spigots *e* and sockets *d*, with space for calking, as with ordinary spigot-socket pipes, special provision being made by a recurved lip or distance-piece *a* at the spigot end to insure perfect alinement of the thoroughfares or ways through the casings, the ends of the divisional webs of the cells being rounded or shaped as a male and female *V* to avoid damage to the cable when being drawn through. The ends of the casings may be at right angles to the line of the cables, but in some cases, in order to reduce the risk of the cables catching against the joints when being drawn through the casing, we arrange that the joints be at an angle to the axial line of the casings.

In some cases we provide a separate joint cover in place of the socket or cast on the ends of the casings lugs or flanges, whereby the adjoining ends of the casings are bolted or cottered together, the abutting ends being tongued and grooved or plain. The cells or thoroughfares in our casings may all be in the same casings of uniform size and section, or one or more of the group may be of larger or smaller size than the rest and of different section.

In order to adapt our cellular casings to carry cables around curves, we provide a certain number of standard bends of various radii, and we also provide junction-boxes with sockets to receive the spigot ends of the casings or with lugs or flanges to correspond with those of the casings. Although these cellular casings may be satisfactorily cast either horizontally or in an inclined position, yet we find that a vertical arrangement of the molding apparatus is very convenient for our purpose, as it enables us to insert the cores which form the channels in a more ready manner without the necessity or use for chap-

lets supporting or centering devices. In order to facilitate the process of introduction and withdrawal of these cores, we sometimes arrange that the cores should be formed by loam or sand supported on central metallic rods in a manner well known to those accustomed to the manufacture of pipe-cores, and that by means of these central rods the said cores can be arranged and grouped and attached to cross-heads, so that they can be readily lowered into place and the distances apart accurately maintained.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. An underground conduit for electrical conductors having the polygonal channels, the dividing-walls of uniform substance of metal and the spigot and socket-joint as set forth, the spigot having the recurved lip as set forth and also having the angle at the entrance of each way into the spigot ends as well as the socket ends rounded off as described to prevent any sharp edges being offered to oppose the passage of the cable.

2. In a multiple-channel metal conduit for underground electrical conductors, the series of polygonally-shaped cellular longitudinal channels as set forth having divided walls of uniform substance of metal, a spigot end and a socket end, said spigot end being provided with a recurved lip as set forth, and the spigot and socket ends of the divisional webs of the cellular longitudinal channels being rounded to avoid damage to the conductor-cables to be drawn therethrough, all substantially as and for the purposes set forth.

In testimony whereof we, the said FREDERICK DAVIS and ROOKES EVELYN BELL CROMPTON, have hereunto set our hands this 24th day of March, 1893.

FREDERICK DAVIS.

ROOKES EVELYN BELL CROMPTON.

Witnesses to the signature of F. Davis:

GEO. W. FRANKLIN,

T. J. OSMAN.

Witnesses to the signature of R. E. B. Crompton:

T. J. OSMAN,

W. J. NORWOOD.