May 6, 1930. W. W. EMMONS 1,757,561

INSULATING JOINT

Filed June 27, 1923

FIG 4

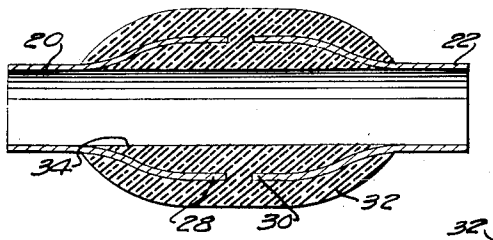


FIG 1

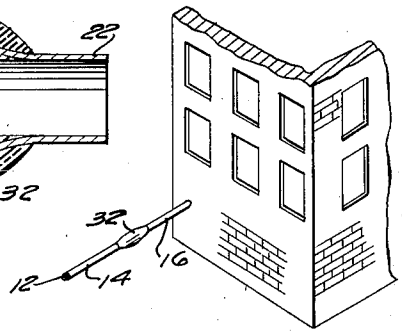


FIG 2

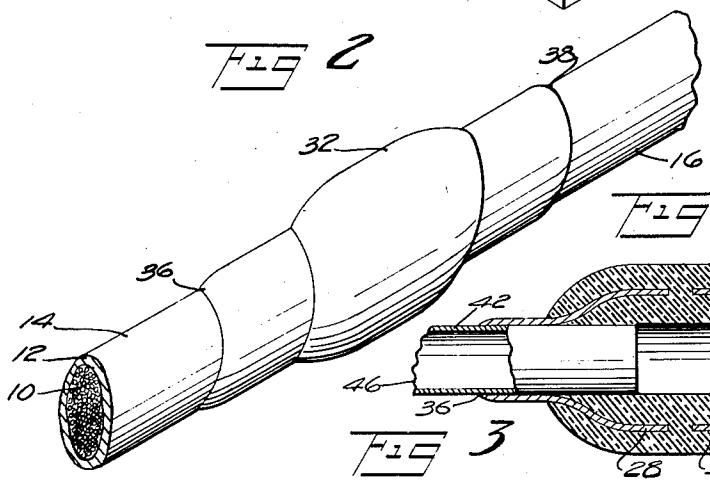
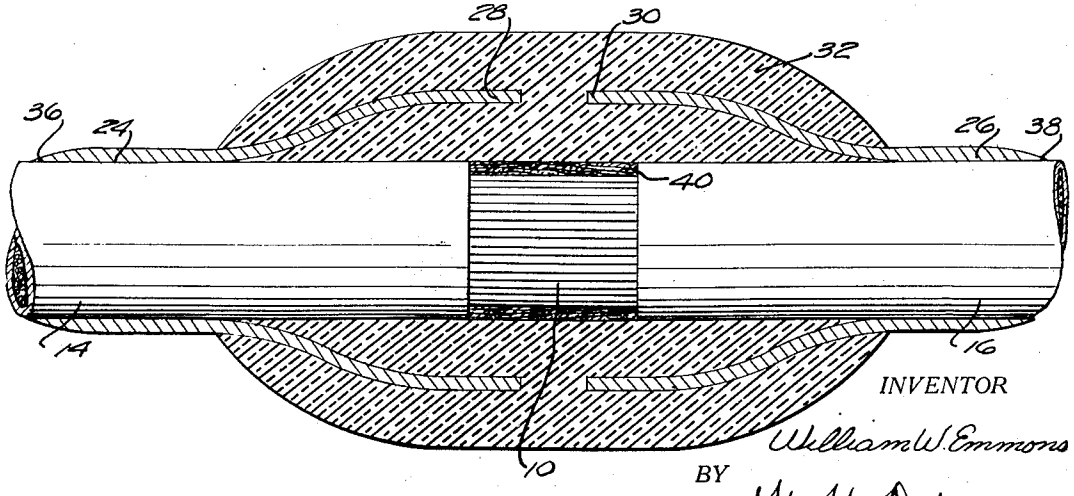


FIG 5

FIG 3



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Patented May 6, 1930 1,757,561

UNITED STATES PATENT OFFICE

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INSULATING JOINT

Application filed June 27, 1923. Serial No. 647,984.

My invention relates to an insulating joint for metallic pipes, conduits and the like. One of the important applications of the invention consists in the provision of an insulating connector for electric cable sheaths, to be used where a sheath is parted for insulating purposes, as, for example, where the cable enters a building, and it becomes desirable to have the sheath portion entering the building insulated from the sheath of the cable outside the building.

With such embodiment of the invention there is provided a simple and inexpensive insulating connector which thoroughly and permanently protects the cable and the wires thereof from the elements and at the same time secures effective and certain electrical insulation of the parts of the cable sheath from one another.

The accompanying drawings illustrate certain embodiments of my invention, but it is to be understood that same is only for the purpose of illustration and for affording an understanding and not for limitation of the invention. In said drawings Fig. 1 is a fragmentary perspective view showing an electric cable entering a building and equipped with an insulating connector outside the building wall. Fig. 2 is a perspective view of the cable sheath with the insulating connector applied thereto on a somewhat larger scale than on Fig. 1. Fig. 3 is a longitudinal sectional view of the parts shown in Fig. 2 on a still larger scale, and showing the insulating connector secured to the parts of the cable sheath by an all-metal joint, such as a soldered or wiped joint, or the like, Fig. 4 is a view similar to Fig. 3, but showing the insulating connector as an article of manufacture and adapted for application to a parted sheath of an electric cable. Fig. 5 is like Fig. 3, but shows the insulating joint of my invention applied to a simple pipe or conduit, such as a gas pipe, for example.

The electric cable usually comprises the insulated wires 10 and their sheath or covering 12, which sheath is preferably made of lead pipe. The sheath is shown divided into two parts 14 and 16 separated from one another by a gap, so that the two parts 14 and 16 are not connected together electrically, and the portion 16 which enters the building is insulated from the exterior cable sleeve portion 14.

The insulating connector for the parts of the cable sheath are preferably constructed as shown in Fig. 4 and comprises a pair of sleeves 20, 22, which are likewise made of material adapted to be connected by an all-metal joint, such as a soldered or wiped joint or the like, to the cable sheath portions 14 and 16, and like the cable sheaths are preferably made of lead. The outer ends of the sleeve portions 20, 22 indicated by reference numerals 24, 26 are relatively contracted in diameter, and are preferably of dimension to fit fairly closely over the cable sheath, their inner diameters being preferably slightly larger than the outer diameter of the cable sheath. These sleeve members 20, 22 are brought fairly close together at their opposite ends 28, 30, but not in contact, and these inner adjacent ends 28, 30 thereof are so constructed as to be adapted to be connected by an interposed sleeve 32 of insulating material, preferably molded insulating material. Good examples of insulating material available for the purpose are bakelite, condensite and the like. The sleeve 32 preferably extends both inside and outside the sleeve members 20, 22 and the adjacent ends 28, 30 thereof are embedded within the molded insulating material, which preferably extends on both sides thereof. With such arrangement the inner adjacent ends 28, 30 of the sleeve members 20, 22 are of a greater diameter than the outer ends 24, 26 thereof, and when said sleeve members 20, 22 are made from lead pipe same can conveniently be expanded at their inner adjacent ends to permit their being embedded in the molded insulating material just described. Preferably the interior bore 34 of the molded insulating member 32 is made of about the same diameter as the outer end portions 24, 26 of the sleeve members 20, 22, so that the cable may be slipped through the insulating connector member made up of the

sleeve members 20, 22, and a fairly close fit obtained throughout the length of the insulating connector.

After the connector is in place the projecting ends 24, 26 of the sleeve portions 20, 22 thereof are secured by an all-metal joint, such as a soldered or wiped joint or the like, to the parted cable sleeve portions 14, 16, as indicated at 36, 38, Fig. 3. If desired, the exposed portion of wires 10 at the gap between cable parts 14 and 16 may be wrapped or covered with suitable insulating material, such as electrician's tape 40 to eliminate voids and to bring the entire surface of the cable within the insulating connector up to substantially uniform diameter throughout its length. By such treatment the joint is also strengthened.

In Fig. 5 I have shown an insulating connector joint member 32' applied to connect the separated parts 42, 44 of a simple pipe 46, such as a gaspipe, for example, and this is but one example of its numerous applications. The pipes to be connected are not necessarily of lead, but may be made of various electrical conducting metallic materials and fastening devices of various types may be used as may be desired, and still other modifications and changes may be resorted to within the scope of my claims without departing from my invention.

I claim:

1. A device of the character described comprising a pair of members having flaring inner portions in spaced relation to each other and tubular outer portions of reduced cross-section in axial alignment with each other and adapted to receive conduits of corresponding cross-section, and an integral mass of molded insulating material disposed exteriorly and interiorly about said flaring portions and connecting the same together; said flaring portions being permanently imbedded in said mass against movement to form therewith a unitary structure; and said mass of insulating material having a passage therethrough registering with the passages through said reduced portions.

2. A device of the character described comprising a pair of members having flaring inner portions in spaced relation to each other and reduced tubular outer portions of substantially uniform cross-section in axial alignment with each other and adapted to receive conduits of corresponding cross-section, and an integral mass of molded insulating material disposed exteriorly and interiorly about said flaring portions inwardly of said outer portions and connecting said members together; said flaring portions being permanently imbedded in said integral mass of insulating material against movement to provide therewith a unitary device; and said insulating mass having a passage therethrough registering with the passages through said reduced portions and corresponding therewith in cross-section.

In testimony whereof, I have signed my name hereto.

WILLIAM W. EMMONS.