

Jan. 29, 1924.

1,481,807

J. F. MURRAY

PRODUCTION OF CONDUITS

Filed July 3. 1922

Fig. 1.

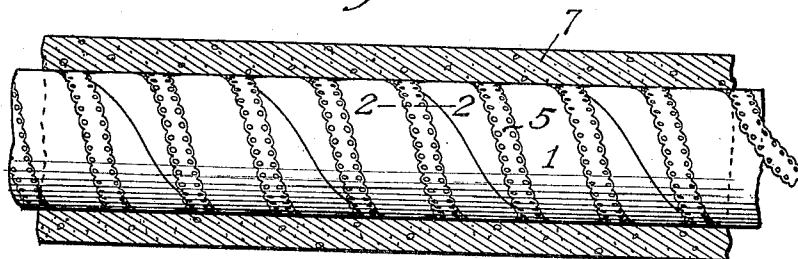


Fig. 2. 5

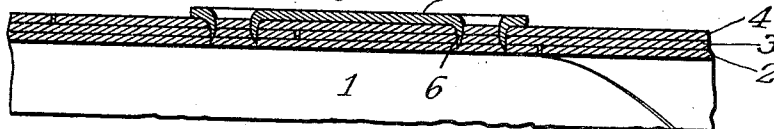
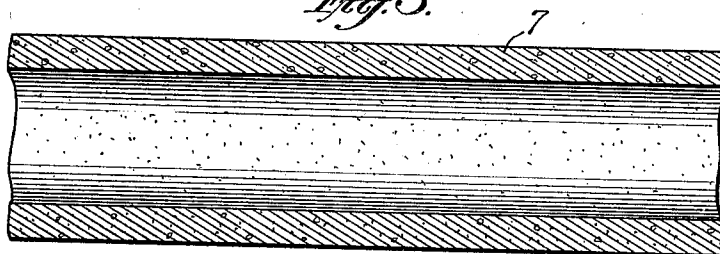


Fig. 3.



5 1 *Fig. 4.* 1

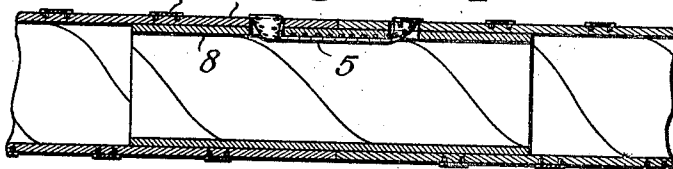
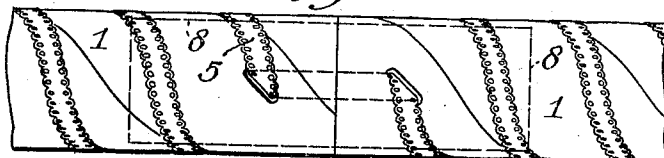


Fig. 5.



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Patented Jan. 29, 1924.

1,481,807

UNITED STATES PATENT OFFICE.

JOHN F. MURRAY, OF BROOKLYN, NEW YORK.

PRODUCTION OF CONDUITS.

Application filed July 3, 1922. Serial No. 572,357.

To all whom it may concern:

Be it known that I, JOHN F. MURRAY, a citizen of the United States, residing in Brooklyn, New York, have invented certain new and useful Improvements in the Production of Conduits, of which the following is a specification.

In several prior patents of Thomas E. Murray, particularly Nos. 1,406,577 and 1,406,578 of February 14, 1922, there are described methods and devices for molding pipes and similar hollow structures of plastic material such as cement, and designed particularly for the molding of small conduits for carrying electric conductors. The aforesaid patents are based on the use of a core of paper which, after the hardening of the cement, is collapsed and withdrawn. In certain of the aforesaid Murray patents (for example No. 1,387,066, August 9, 1921) there is described a spiral wire enclosing the core and used to withdraw the core longitudinally from the molded conduit.

The present invention presents an improvement upon the schemes described in the aforesaid patents.

The accompanying drawings illustrate embodiments of the invention.

Fig. 1 is a side elevation of a core with a tube of concrete shown in section upon the core;

Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section of the tube of Fig. 1 with the core withdrawn;

Fig. 4 is a vertical section of the core showing the construction at a joint;

Fig. 5 is a plan of the same.

The core may be made of various materials flexible enough to permit withdrawal in the manner hereinafter described but stiff enough to hold the tubular shape during the molding of the pipe, and preferably stiff enough to do this without internal support, although various styles of internal support may be provided such for example as the internal coil of Patent No. 1,387,066 above cited. In the case illustrated the core 1 is made of paper wrapped with spiral joints and formed in three plies as indicated at 2, 3 and 4, Fig. 2. This is a common kind of paper or cardboard tubing.

In combination with this hollow core I use a metal strip 5 wound spirally around the core and attached thereto by means of prongs 6 bent inward along the edges of the

strip and entering the material of the core. Such a metal strip is also a known article of commerce and can be produced very cheaply in various forms. This strip is wound closely about the core with its smooth face on the outside and is so thin as to be nearly flush with the surface of the core and thus to provide a smooth molding surface for the pipe 7 which is cast around it.

The tube being molded, the core is withdrawn by seizing the projecting end of the strip 5 and pulling it strongly. If an internal support for the core has been used, this will, of course, be first withdrawn. If the paper used has been sufficiently stiff by itself, but bibulous so as to absorb water from the cement and thus to become softened, it is, of course, necessary to wait until this softening effect is obtained. In any case the pulling of the strip has two tendencies. First, by reducing the diameter of the coil it squeezes the core inward away from the wall of the molded pipe and, even without the prongs, would grip the internal coil frictionally and would carry it or most of it along out of the molded pipe. Secondly, the direct attachment of the strip to the material of the core pulls the latter along with the strip and out of the pipe.

It is quite important that the material of the core be completely removed from the pipe so that there shall be no difficulty in subsequently drawing electric conductors there-through or using the pipe in any other way. The spiral strip with its attaching prongs makes it possible to clean the core out of the pipe completely without the use of any special appliances and without special difficulty. Various other means may be used for attaching the strip positively to the core.

An advantage in the positive attachment of the coil to the core as distinguished from a mere frictional attachment, arises particularly in the making of a joint between successive sections of the core so as to mold a long conduit. This is illustrated in Figs. 4 and 5. Here the strip 5 is made to pass through registering openings in sections 1 of the core and a coupling section 8 fitting within the abutting ends of the sections 1. The strip 5 passes through holes in sections 1 and 8 to the inside of the core and thence out through similar openings to the outside of the adjoining section 1. With an engagement of this sort it will be appreciated that

the pulling of the metal strip will positively pull out the core sections by reason of its attachment to the latter. Various other methods of attachment or of tying the core section 8 in with the strip may be utilized.

Though I have described with great particularity of detail certain embodiments of my invention, yet it is not to be understood therefrom that the invention is restricted to the particular embodiments illustrated. Various modifications thereof in detail and in the arrangement of the parts may be made by those skilled in the art without departure from the invention as defined in the following claims.

What I claim is—

1. A hollow molding core of paper in combination with a metal strip attached thereto throughout substantially its full length and adapted when drawn out of the molded object to also withdraw the core.

2. A collapsible and removable hollow molding core in combination with a metal strip attached thereto, the core being of flexible material adapted to be collapsed and withdrawn from the molded object by means of the metal strip.

3. A hollow molding core in combination with a strip wound spirally around said core and attached thereto.

4. A hollow molding core in combination with a metal strip having pointed projections at intervals entering the material of the core and fastening the strip thereto.

5. A hollow molding core in combination with a metal strip wound spirally around said core, said strip having a flat smooth outer face and having inward projections at intervals entering the material of the core.

6. A hollow molding core comprising a plurality of sections in combination with a metal strip wound around at least one of said sections and passing through two adjacent sections.

7. The method of molding tubular articles which consists in providing a collapsible core, attaching a metal strip to said core throughout substantially its full length, casting the article and then pulling the strip and by said attachment pulling the core out of the article.

In witness whereof, I have hereunto signed my name.

JOHN F. MURRAY.