July 13, 1926. 1,591,991

T. E. MURRAY

MEANS FOR MAKING CONDUITS

Filed April 20, 1923

Fig. 1.

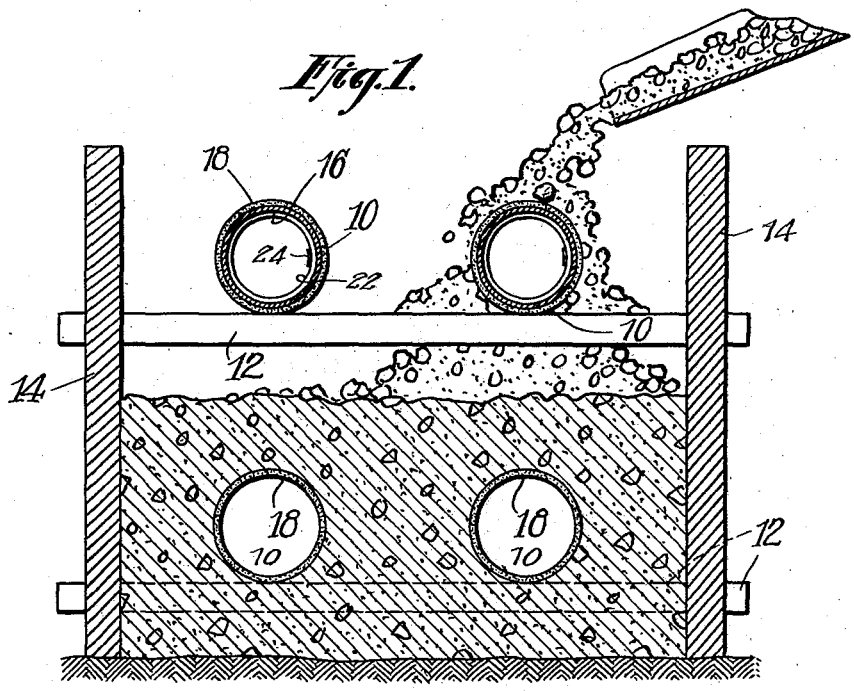


Fig. 2.

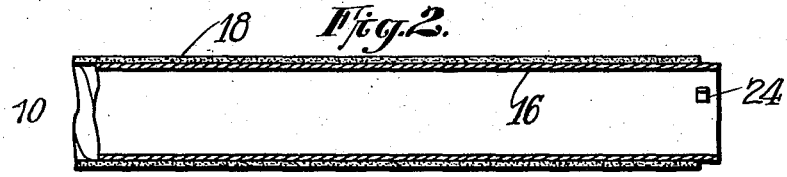


Fig. 3.

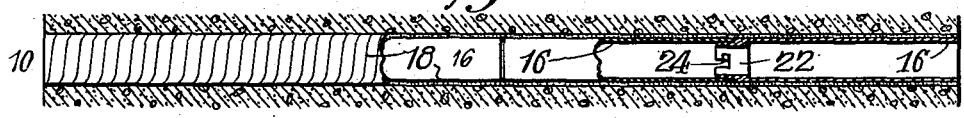


Fig. 4.

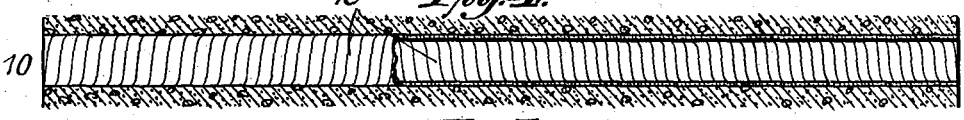


Fig. 5.

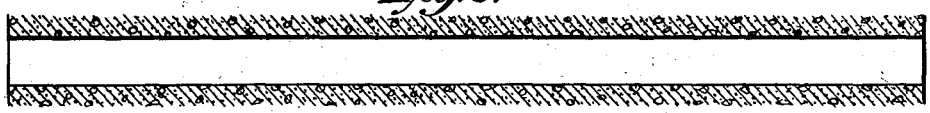
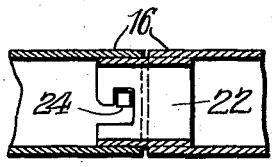


Fig. 6.



Inventor

Thomas E. Murray.

By His Attorney

D. Anthony Usina

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UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF BROOKLYN, NEW YORK.

MEANS FOR MAKING CONDUITS.

Application filed April 20, 1923. Serial No. 633,410.

This invention relates to improvements in the method of making conduits of moldable material such as concrete, cement, clay, plaster and the like, and also to improvements in cores used in molding or casting such materials.

The invention aims to provide a method whereby a core of comparatively soft yielding material may be used without danger of collapsing or distorting the core while the concrete is being dumped into the mold.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a transverse section through a mold supporting a plurality of cores made of bibulous material and carried by inner metal shells.

Fig. 2 is an enlarged longitudinal section of a portion of a core embodying my invention;

Figs. 3, 4, and 5 illustrate steps in making a conduit according to my method;

Fig. 6 illustrates a joint for connecting adjacent sections of the core lining.

Referring to the drawings, the cores 10 are supported on suitable cross pieces 12 secured at the ends of the false work or form 14, forming part of the mold. The forms or false work may be of any suitable material and may take different shapes according to requirements, the construction shown being merely illustrative.

The cores 10 are of improved construction and each comprises a comparatively stiff inner shell 16 formed of any suitable material, preferably of steel or comparatively thin sheet iron, and in some cases ordinary steel tubing or iron pipe can be used for the purpose. The shell 16 is located within a comparatively soft yielding sheath 18 which may be made of various material as, for example, paper or cardboard formed by spirally winding on a suitable mandrel. The paper sheath 18 fits loosely over the shell 16 so that the shell can be withdrawn after the material has been molded or cast, as will hereinafter appear.

The invention is particularly useful in forming conduits of great length for the accommodation of electric wiring used below the surface of the earth, such as under street pavements and in subways, tunnels, viaducts and similar locations.

As disclosed in previous Murray patents, it is particularly advantageous to utilize cores of bibulous material in forming molded conduits because such material quickly absorbs moisture from the concrete throughout the surface of the molded conduit and hence quickens the setting of the concrete or other moldable surface adjacent to the core.

A difficulty, however, has been experienced in using paper cores. This is a liability of such cores being dented or fractured when the material is cast or dumped around the core. Of course where the core is dented or fractured, inequalities will appear in the surface of the conduit, and such inequalities interfere with the fishing of wires or cables through the conduit and also interfere with the removal of the paper core from the conduit.

By use of my improved core and method these difficulties are overcome. In carrying out the method I first place the paper sheath over the metallic shell. This forms a core such as indicated at 10. The core or cores are then separately supported on cross-beams or other false work, and the concrete dumped into the form as shown in Fig. 1. As thus arranged it is apparent that stones or gravel striking the paper sheath 18 cannot dent or puncture the same because of the resistance of the shell 16. After the material has been dumped into the form and the core is covered, the shells 16 are immediately removed, the paper cores being of sufficient stiffness to retain their shape, it being apparent that after the cores are covered the pressure is substantially equalized throughout the surface of the paper core. By immediately withdrawing the steel shells 16 they are available for use again in other locations. For example, in Fig. 1, the shells have been withdrawn from the sheaths 18 leaving only the paper cores for the two bottom conduits. These same steel shells can be used in forming the cores 10 for the two upper conduits as will be appreciated.

The conduits are usually of great length and, for ease in handling, the paper sheaths and steel shells are made in comparatively short sections. For joining the adjacent steel tubular sections, I have shown in Fig. 6 a sleeve 20 secured to the end of one section and telescopically engaging the adjacent end of a mating section. The sleeve being formed with a bayonet slot 22 for engagement with a lug 24. With this arrangement it is apparent that the sections can be

readily coupled together or disconnected as desired.

In a co-pending application Serial Number 633,408, filed concurrently herewith, I have shown and described a preferred means and method for joining and disconnecting the inner sections of the core, and this detail, therefore, will not be described or claimed herein.

The steps of the method are shown graphically in Figs. 3, 4 and 5, Fig. 3 showing a core comprising a steel shell 16 sheathed with a removable paper covering 18 and embedded in a mass of concrete, 26. Fig. 4 shows the paper core after the inner metallic shell has been removed and Fig. 5 shows the conduit after the removal of the paper sheath.

The paper sheath 18 may be provided with an exterior spirally wound member adaped to collapse the core after it has absorbed the moisture from the concrete mass, and after the latter has set sufficiently.

The means for collapsing and withdrawing the paper tube is not shown and described specifically herein as the same is of known construction and covered by previous Murray patents.

Though I have described with great particularity a certain specific core and steps in the method forming conduits, it is not to be construed that I am limited thereto, as changes may be made by those skilled in the art without departing from the invention as defined in the appended claims.

What I claim is:

1. A core for the purposes described comprising an outer member of comparatively soft yielding material strong enough to support the surrounding plastic material after the latter has been cast in place and non-contractible inner tubular member having sufficient inherent stiffness to support the outer member during the casting operation to prevent distortion thereof.

2. A core for the purposes described comprising an outer member of comparatively soft yielding material strong enough to support the surrounding plastic material after the latter has been cast in place and inner tubular member having sufficient inherent stiffness to support the outer member during the casting operation to prevent distortion thereof, the inner member fitting loosely within the outer member so as to be easily inserted into and withdrawn therefrom.

In witness whereof, I have hereunto signed my name.

THOMAS E. MURRAY.