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T. E. MURRAY

CORE AND METHOD OF MAKING CONDUITS

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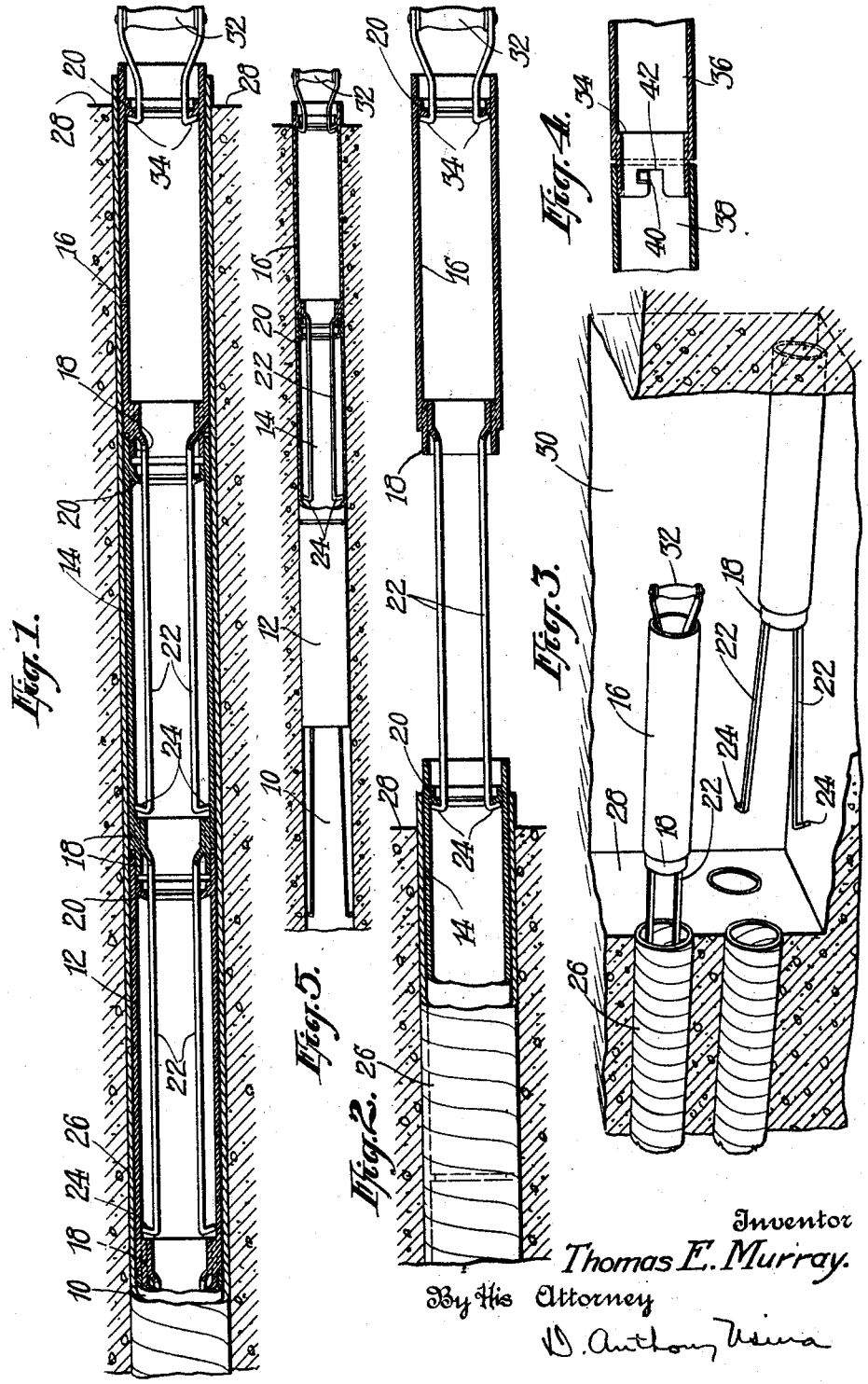

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CORE AND METHOD OF MAKING CONDUITS.

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To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing in Brooklyn, Kings County, and State of New York, have invented certain new and useful Improvements in Cores and Methods of Making Conduits, of which the following is a specification.

This invention relates to improvements in the method of making conduits and also to improved cores.

The invention aims to provide a core made of a multiplicity of sections which can be successively withdrawn after the material has been cast around the core. Heretofore cores of great length have been removed with difficulty.

My improved core includes a number of metallic tubular sections arranged so that they can be readily connected to one another to form a continuous unitary core and yet be dismantelled one at a time. Metallic cores of great length are of necessity quite heavy and would ordinarily be removed with great difficulty due to weight of the core plus the friction exerted on the surfaces it engages.

My invention provides means whereby suitable sections of the core can be removed one at a time, hence the operator only has to pull a comparatively short section at each operation with a correspondingly smaller friction drag.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a longitudinal section illustrating one embodiment of the invention and a step of the method;

Fig. 2 is a similar view showing the method of withdrawing separable core sections;

Fig. 3 is a perspective view showing a number of conduits terminating at the wall of a man-hole and illustrating the practical application of the invention;

Fig. 4 is a detail view showing a modified construction of coupling between two adjacent core sections;

Fig. 5 is a view similar to Fig. 1 illustrating a sectional core for forming a conduit without the use of an outer sheath.

Referring to the drawings, in Fig. 1 I have shown a sectional core comprising members 10, 12, 14 and 16. Each of these members is in the form of a shell or tube having a sleeve 18 arranged to telescopically engage the adjacent end of its neighboring tube. Each tube carries near the end opposite the sleeve an annular ring 20 forming a shoulder to be engaged either by the hooked ends of withdrawing straps carried by the sections, or by the hooked ends of a tool as will hereinafter appear.

Each of the sections 10, 12 and so forth, has projecting from one end thereof a pair of pulling straps 22 having hooked ends 24 adapted to engage the shoulders 20 when the sections are withdrawn.

In making a conduit according to my improved method, I first couple the several sections to one another as shown in Figs. 1 and 5 so that the pulling straps 22 of one section extend beyond the shoulder 20 of the adjacent section, the sleeves 18 secured to one section loosely engaging the walls of the adjacent section as will be understood. The several sections thus assembled form a comparatively long core. This core is supported in any suitable manner within a form and the concrete or other moldable material is poured around the core and allowed to harden or set for a suitable interval of time, and the core is then withdrawn.

As shown in Fig. 5, the conduit is formed by molding the material directly around the sectional core. This core may be made of heavy cardboard or other bibulous material and the sleeves 18 may be riveted or otherwise secured thereto and the shouldered rings 20 and pulling straps 22 may be similarly riveted to the tubular shell. Preferably, however, the tubular sections 10, 12 and so forth, are made of metallic tubing and the pulling straps, sleeves and shoulders are welded or otherwise secured thereto. When desired the sectional core can be sheathed with a tube of cardboard or similar bibulous material, as illustrated in Figs. 1 to 3.

When the core is sheathed as here shown, the paper tube or sheath 26 will usually be made up of a single long section or several sections of considerably greater length than the length of the inner core sections.

With a core made of a multiplicity of separable sections as described, it can be removed from the end of the conduit in separate stages. If the core were made in a single long continuous structure, it is clear that considerable effort would be required to withdraw the same. It is also apparent that clearance equal to the length of the core would be necessary at the end of the conduit to permit its removal.

Conduits are frequently made in locations where it is inconvenient to provide sufficient clearance to remove extremely long cores and such cores are often of such great length that their weight and frictional drag on the side of the conduit makes removal very difficult and in many cases practically impossible.

As illustrated in Fig. 3 the conduits terminate at the wall 28 of a man-hole or vault 30 formed in a pavement or tunnel. The usual dimensions of such vaults or manholes will not permit the removal of integral cores of great length. The sectional core herein disclosed is made up of a number of short lengths which are proportioned to be readily withdrawn by a workman in a man hole or vault of limited dimensions. The arrangement of pulling straps 22 and shouldered rings 24 is such that the sections can be successively removed one at a time.

In removing the cores the operator first inserts a tool 32 in the end of the first section 16 so that the prongs 34 spring into engagement with the shouldered ring 20 of the end section. He then pulls the tool outward, for example as shown in Fig. 3, until the first section 16 is entirely withdrawn from the conduit. This action will bring the ends 24 of the pulling straps 22 of the first pulled section into engagement with the shouldered ring 20 of the next section 14. Further pulling on the section 16 will then cause the section 14 to be withdrawn from the face 28 of the conduit wall whereupon the pulling straps 22 of the first removed section can be collapsed and disconnected from the section 14 and said section can be pulled out in a similar manner. As this section is withdrawn the hooked ends 24 of its pulling straps will engage the shouldered ring 20 of the section 12 and this section will likewise be pulled out.

This manner of removing the sections in successive stages divides the work or pulling load sufficiently to enable the workman to withdraw the sections without undue exertion or strain. In pulling the strap of one section into position to engage the shouldered ring 20 of the second section, a blow can be exerted which tends to start the uncoupling movement of one section to the other. Such a blow is more effective than a direct pull and affords an effective means for starting the separating movement.

The separate sections can be of different diameters if desired so as to permit of easy removal. When they are of different diameters the section most remote from the pulling end is of the smallest diameter and the succeeding sections are of gradually increasing diameters toward the pulling end. As thus arranged it is apparent that as the succeeding sections are pulled from the molded conduit they pass through spaces of gradually increasing diameters. The variation of diameter between the separate sections may be very slight and is preferably just sufficient to permit sections to move freely through the conduit.

As shown in Fig. 4, where comparatively short conduits are to be formed, I may join the adjacent sections of the core by means of a bayonet joint, the drawing showing a sleeve 34 secured to one of the sections 36, telescopically engaging an adjacent section 38, having a lug 40 secured thereto which is adapted to engage the bayonet slot 42.

Though I have described with great particularity certain embodiments of the invention shown, and steps in carrying out my improved method, 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 molding conduits of great length comprising a series of non-collapsible sections arranged to be successively removed one at a time from one end of the conduit.

2. A core for molding conduits of great length comprising a series of rigid non-collapsible sections and means for withdrawing certain sections separately without moving other sections.

3. A core of the class described comprising a plurality of rigid tubular sections detachably connected to one another and arranged so that certain sections can be successively withdrawn without moving other sections.

4. A core comprising a plurality of non-collapsible tubular sections and connecting means whereby one section can be first pulled longitudinally without moving its adjacent section and later pulled simultaneously with said adjacent section.

5. A core of the class described comprising a plurality of rigid metallic tubes having an outer sheath and means for successively withdrawing said tubes from the sheath.

6. A core comprising a plurality of single piece tubular sections and connecting means between said sections whereby one can be first pulled longitudinally away from the other and later pull the other with it so as to permit the dismantling of a comparatively long core in a short space.

7. A core comprising a plurality of tubular sections each having a sleeve adapted to telescopically engage an adjacent section, and each having a resilient pulling strap and a projection, the latter parts being arranged so that the sections can be successively separated and disconnected from one another.

8. A core of the class described compris-

ing a series of tubes arranged end to end, each having a fixed projection near one end and a forwardly extending pulling member secured at the opposite end.

9. A core of the class described comprising a series of tubes arranged end to end, each having a fixed projection at one end and a resilient member adapted to engage the projection of an adjacent tube, whereby the different sections can be readily coupled and uncoupled by flexing said resilient member.

In witness whereof, I have hereunto signed my name.

THOMAS E. MURRAY.