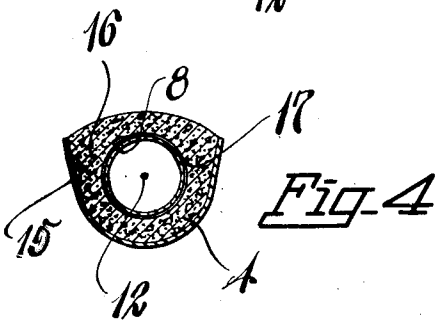
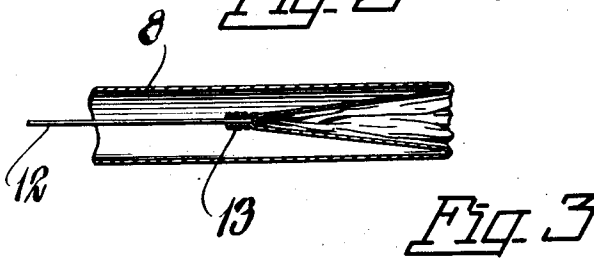
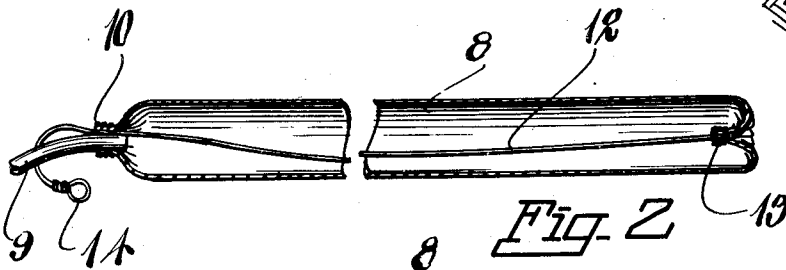
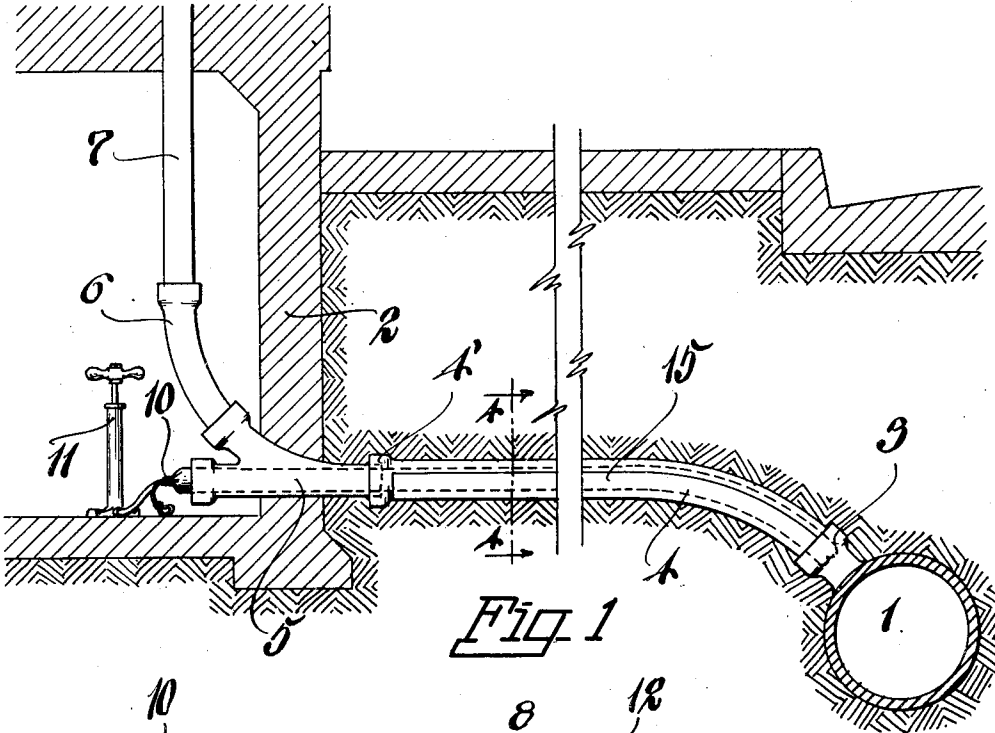


J. STREMEL.
SEWER PIPE CONSTRUCTION.
APPLICATION FILED NOV. 5, 1919.

1,348,332.

Patented Aug. 3, 1920.



By

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SEWER-PIPE CONSTRUCTION.

1,348,332.

Specification of Letters Patent.

Patented Aug. 3, 1920.

Application filed November 5, 1919. Serial No. 335,973.

To all whom it may concern:

Be it known that I, JOSEPH STREMEL, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Sewer-Pipe Construction, of which the following is a specification.

The present invention relates to an improved Sewer Pipe Construction of cement or concrete in connection with a collapsible core about which the cement or concrete structure is molded to form the pipe or conduit. The primary object of the invention is the provision of means and a method of constructing the sewer pipe from the house to the street main, in a unitary structure, thus avoiding the use of joints and eliminating the consequent disadvantages and annoyances of stoppages in the pipe due to growth of roots in the joints or the presence of excess cement or other binding material in jointing the pipes that may come through the joint.

The invention consists essentially in the utilization of a collapsible core of special construction and adapted for use in combination with the other elements required in the operation of molding the walls of the conduit or duct, as will be hereinafter explained, and as illustrated in the drawings.

The drawings show one complete example of the physical embodiment of the invention, the parts being combined and arranged according to the best mode I have so far devised for the practical application of the principles of the invention.

Figure 1 is a sectional, diagrammatical view in elevation showing the sewer connection between the sewer or street main and the house sewer pipe, the usual outlet or Y-connection being shown in the foundation wall of the house.

Fig. 2 is a sectional view of the broken, collapsible core utilized in the making of the conduit or duct, shown in inflated position.

Fig. 3 shows the distal end of the collapsible core with the pull cord attached, the core being in deflated position and partly pulled within itself to separate and withdraw it from the finished duct or pipe.

Fig. 4 is a cross section at line 4-4 (enlarged) of Fig. 1.

In order that the invention and its appli-

cation may be readily understood I have illustrated in Fig. 1 the sewer pipe or main 1 running beneath the surface and in front of the house from which the connection is to be made, the foundation or basement wall of the house being indicated at 2.

The sewer pipe 1 is provided with the usual inlet thimble 3, and the completed duct or pipe is indicated as 4, one end of the duct extending into the thimble, and the other end fashioned with a flange or socket 4' for the reception of the branch elbow or Y-connection 5, usually fixed in the wall, 2 with its outlet or open flanged end 5' adapted to be plugged or closed, and afterward, if required, opened in case of emergency. A joint of pipe 6 usually of metal is coupled to the Y-connection and then the down pipe 7 is built up in the house as usual.

In the construction of the drainage pipe 4 a collapsible core 8 is used, made preferably of flexible material such as canvas, rubberized textile material, or other flexible material suitable for the purpose of withstanding pneumatic pressure from the interior and the weight of the concrete and cement from the exterior, as the drainage pipe 4 is built. The core is of course air tight and is inflated or deflated through the air hose 9 entering through the neck 10 and receiving air under pressure from the pump 11 by means of which air is forced into the core to distend it preferably into a cross sectional cylindrical form of the required or desired diameter. The core in a single, unitary length is sufficient to provide a one piece integral, jointless drainage pipe from the house to the sewer or street main, and as shown is laid partly on the level and partly on a declination to the sewer, the inflated core being capable for required flexing to give the proper pitch for the pipe to drain off into the sewer.

A pull cord 12 passes through the throat or closure 10 into and through the full length of the core and is attached at the inside, to the end 13 of the core, so that the walls of the core may be pulled within itself, after being deflated, to withdraw the collapsed core, a ring or holder 14 being attached at the end of the cord or wire 12.

Before building the drain pipe a suitable trench is dug to the required depth, and a metallic sheathing or lining 15 is laid therein, it being desirable that the bottom of the

trench conform to the semi-circular cross section of the sheath, and then the concrete or cement indicated at 16 is supplied, after the core 8 has been placed *in situ*. The core 5 is of course inflated by pressure from the pump, with its distal end 13, closed, and inserted in the joint thimble 3 of the sewer main, and the proximate end 10 is also rendered air tight in order that the walls of the 10 core may be distended to form a uniformly cylindrical core about which the concrete is placed and tamped within the sheath. Preferably an exterior lining or wrapping is placed on the core indicated at 17, this covering preferably being of water-proof material or paper that is to remain permanently 15 in the drain pipe as an interior lining sealed to the cement or concrete walls, after the core has been withdrawn, and forming a part of the drain pipe. The proper or desired thickness of material is tamped about 20 the core and in the sheath, building up the body of the pipe from the lowermost end or portion and fashioning the integral and unitary structure from the thimble joint 3 of 25 the sewer main 1 to the Y-branch in the foundation wall over which the flange 4' is formed. The formation of the drain pipe or conduit is illustrated in cross section in Fig. 4 where the body of the material at its bottom and sides is supplemented by the sheathing 15 of metal, the top portion of the conduit being somewhat rounded, and the bore or opening through the conduit being cylindrical. No joints occur in the interior of 35 the conduit and the walls are all smooth thus presenting no obstruction whatever to liquid or solid materials passing through the pipe.

40 After the concrete or cement has set and attained the proper degree of hardness, the collapsible core is removed, and this is accomplished by utilizing the pull ring 14 on the free end of the rope 12, a pull of sufficient power being applied to the rope or wire 45 to disengage the core from the lining 17 of the conduit. The collapsible core is not violently torn away from the interior of the conduit, but is gradually eased out, the disengagement, as will be apparent, occurring

only in a ring of narrow width, and in this manner not only is the core not torn or broken, but there is no likelihood of tearing off the lining 17. The core is thus turned 55 outside in or reversed and the end 13 pulled throughout the length of the core until the core is bodily removed through the Y-branch 5' as seen in Fig. 1.

What I claim is—

1. The method of constructing a conduit 60 which consists in utilizing a trench with an open sheath therein, of depositing a layer of concrete material in the bottom of said sheath, of tamping same, and laying thereon a collapsible core, of depositing and tamping 65 concrete material between said core and the side walls of said sheath and over and around the top of said core to form a unitary body, and turning the core inside out by pulling one end through the body of the 70 core as its walls are disengaged from the interior of the conduit.

2. The method of constructing a conduit which consists in molding concrete material 75 about a hollow, flexible, inflated core, and after the conduit body is set, withdrawing the core by pulling one of its ends throughout the length of its interior to disengage it gradually from the interior walls of the conduit. 80

3. The method of constructing a conduit which consists in molding concrete material 80 about the outer, dispensable covering of a hollow, flexible, inflated core, and after the conduit body is set gradually withdrawing 85 the flexible core by pulling its distal end telescopically through itself, leaving the dispensable covering as a permanent rigid lining of the conduit.

4. An inflatable, collapsible, flexible core 90 comprising a hollow body closed at one end and having a pull cord attached thereto, said cord extending throughout the length of the core and through an opening at the proximate end, and the latter end having means to 95 form an air tight closure, and an air pipe for furnishing compressed air to said core, substantially as described.

In testimony whereof I affix my signature.
JOSEPH STREMEL.