

March 29, 1955

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2,704,875

SECTIONAL MOLDS FOR Y-TYPE SEWER TILE

Filed Sept. 25, 1952

2 Sheets-Sheet 1

Fig. 1

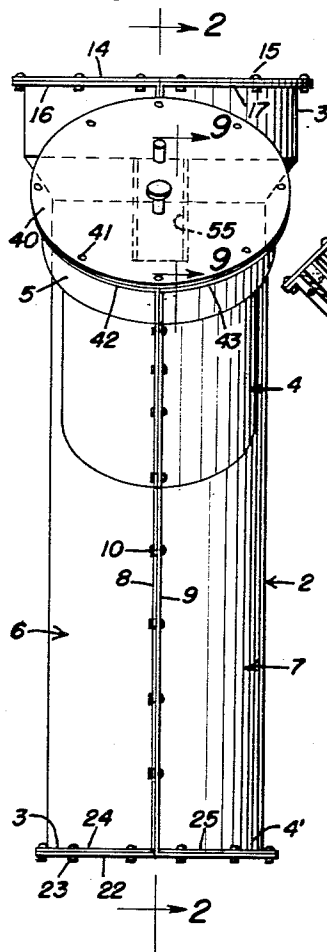


Fig. 2

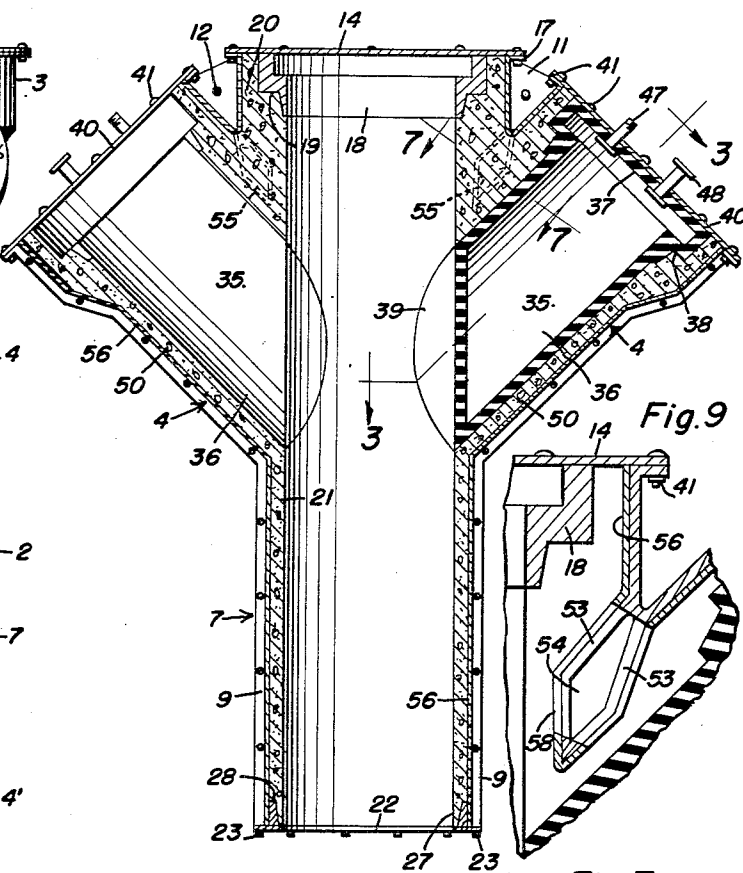
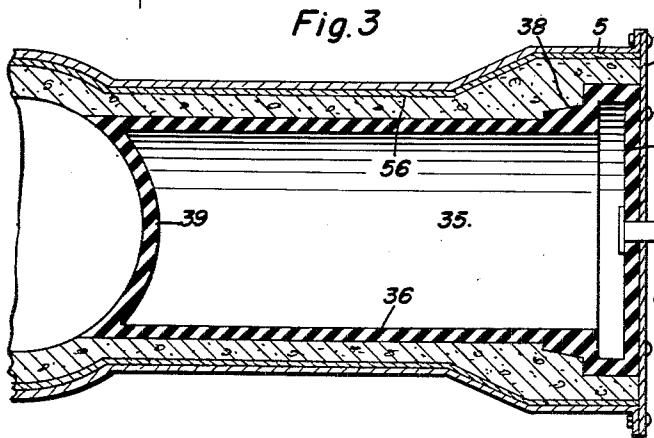
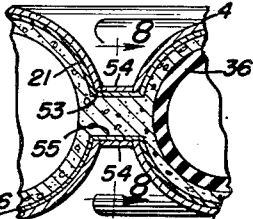


Fig. 9

Fig. 7

Fig. 3



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Fig. 4

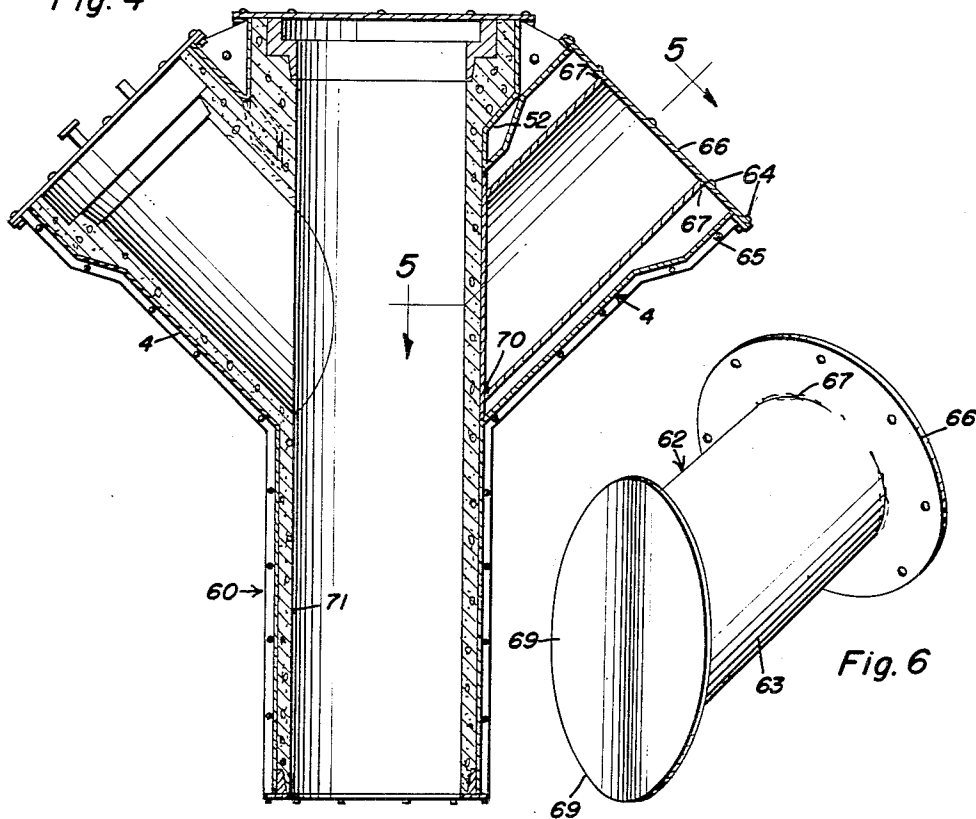


Fig. 6

Fig. 5

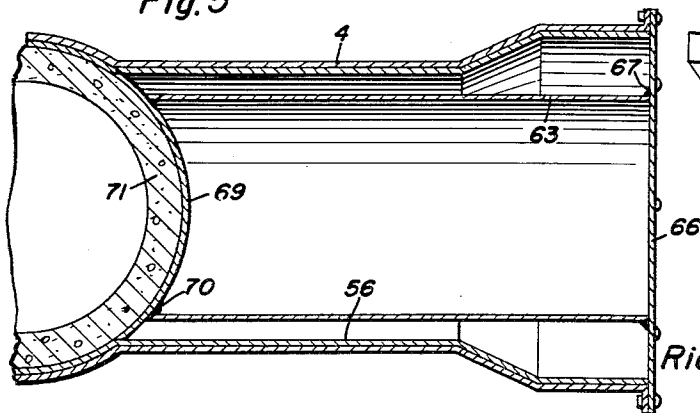
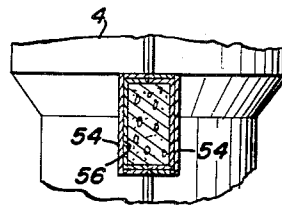


Fig. 8



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SECTIONAL MOLDS FOR Y-TYPE SEWER TILE

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4 Claims. (Cl. 25—127)

My invention relates to improvements in sectional molds for forming Y-type sewer tile out of concrete, or the like, by spinning the mold in a machine for centrifugal molding, the mold being designed as an improvement over that forming the subject matter of my U. S. Patent No. 2,404,966, dated July 30, 1946.

The primary object of my invention is to provide a practical, efficient mold for forming Y-type sewer tile with either a single, or a pair of lateral branches selectively.

Another object is to provide a mold for the above purpose embodying a pair of branches either of which may be used for forming a single branch on the tile.

Another object is to provide a mold with a pair of branches, and cores for the branches molding a pair of branches, on the tile, and means for closing either of the branches to mold a single branch on the tile.

Still another object is to provide cores for the branches of the mold which are inflatable under internal pressure, for molding purposes, and deflatable for easy and quick removal from the branches of the tile.

Still another object is to provide extensible, inflatable cores for the branches of the mold for forming with the branches bell-mouth ends on the branches of the tile.

Still another object is to provide a rigid core for the branches of the mold for use in either branch as a dummy core to close either branch and prevent molding therein while the other branch is being used for molding purposes to form a single branch on the tile.

Other and subordinate objects, within the purview of my invention, together with the precise nature of my improvements will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in plan of my improved mold in the preferred embodiment thereof;

Figure 2 is a view in longitudinal section taken on the line 2—2 of Figure 1;

Figure 3 is an enlarged fragmentary view in transverse section taken on the line 3—3 of Figure 2;

Figure 4 is a view in longitudinal section of a modified embodiment of the core;

Figure 5 is an enlarged view in transverse section taken on the line 5—5 of Figure 4;

Figure 6 is a view in perspective of one of the cores of the modified embodiment, forming a dummy core;

Figure 7 is a fragmentary view in transverse section taken on the line 7—7 of Figure 2;

Figure 8 is a view in transverse section taken on the line 8—8 of Figure 7, and

Figure 9 is an enlarged fragmentary view in longitudinal section taken on the line 9—9 of Figure 1.

Referring to the drawings by numerals, and first to Figures 1, 2, 3, 7, 8 and 9, in the embodiment illustrated therein, the mold of my invention is of Y-form with a cylindrical body 2 having a flared bell-mouth end 3, a straight end 4', and a pair of like coplanar and cylindrical branches 4 adjacent the bell-mouth end 3 diverging relatively from opposite sides of the body 2 toward said end 3, and having flared bell-mouth outer ends 5.

The mold is split diametrically through the body 2 and branches 4 into mating half-sections 6, 7 which are detachably secured together by means of longitudinal edge flanges 8, 9 on opposite sides of said sections 6, 7 bolted together, as at 10, and said sections are additionally se-

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cured together by gusset plates 11 on said sections 6, 7 extending between the bell-mouth end 3 and said bell-mouth ends 5 and which are adapted to be bolted together, as at 12, in opposed pairs. The mold is formed of suitable cast metal.

A circular closure plate 14 for the bell-mouth end 3 of the body 2 is detachably bolted, as at 15, to semi-circular edge flanges 16, 17 on the sections 6, 7 at said end 3. A circumferentially stepped core 18, such as disclosed in my aforesaid patent, is carried by the closure plate 14 to form an annular stepped groove 19 in the bell-mouth end 20 of the tile 21.

A circular closure ring 22 for the straight end 4' of the mold is detachably bolted, as at 23, to semi-circular end flanges 24, 25 on the sections 6, 7 at said straight end 4' of the mold and carries an annular, tapered core 26, such as is disclosed in my aforesaid patent, for forming a reduced tongue 27 and a shoulder 28 on the tile 21 at the straight end of the mold. As will be understood, the tongue 27 and shoulder 28 of one tile are designed to fit in the stepped groove 19 of another tile, with clearance sufficient for packing in the joint.

An extensible, inflatable core 35 is provided for each branch 4. These cores each comprises a hollow cylindrical member 36 of molded rubber, or rubber composition. Each member 36 is provided with a flat front end 37 enlarged and circumferentially stepped like the core 18 to form in the bell-mouth end of the branch 4 an annular stepped groove 38 for the same purpose as groove 19, and each member 36 has a rear end 39 concave in cross-section to correspond in curvature with the internal curvature of the body 2, and terminating at said body.

A circular closure plate 40 for the bell-mouth end 5 of each branch 4 is detachably bolted, as at 41, to semi-circular flanges 42, 43 on the sections 6, 7 at said ends 5 of the branches 4, and the member 36 for each branch 4 has its outer end 37 secured flat, in any suitable manner, to the closure plate 42 coaxially thereof so that the core 35 is suspended by the plate in the branch.

A suitably valved air inlet nipple 47, such as a tire valve, extends through each closure plate 40 and the outer end of the member 35 on said plate for attachment to an air line, not shown, for inflation of the core member 36. A suitable pressure relief valve 48 extends through each closure plate 40 and the outer end of the associated core member 36 supported thereby for deflating the core member.

The cores 45, that is to say, the members 36, are constructed and arranged for maximum extension radially, under air pressure therein, to space the same clear of the inner wall of the branches for a distance corresponding to the thickness of the tile 21 to be molded.

As best shown in Figures 4, 8 and 9, the branches 4 and body 2 form at their juncture, adjacent the bell-mouth ends 3, 5 a circumferential channel 42, for reducing the weight of the mold. To facilitate passage of concrete, under centrifugal molding, into the branches 4 at these points, the sides of the mold at opposite sides of the channel 51 are slotted, as at 53, and the slots bridged, in each instance, by a pair of plates 54 to form a pair of ports 55 at opposite sides of the mold coplanar with the split in the mold to be split like the mold and communicating the body 2 with each branch 4 so that the concrete may readily pass from the body 2 into the branches 4 under centrifugal force.

A Y-shaped, cylindrical liner 56 of tar paper is provided in the mold. The liner 56 is a unitary structure and provides a jacket for holding the concrete in molded shape after it becomes partly set so that the mold may be removed before the concrete has become completely hardened. The liner 56, as in my aforesaid patent, is left on the tile 21 when it is laid. As shown in Figure 9, the liner 56 is ported as at 58, like the mold to extend through the ports 55, and as shown in Figure 7, the ports 55 will mold connecting ribs between the body of the tile 21 and its branches. The members 36 may be also molded of metal or other suitable material.

In the modified embodiment of the invention shown in Figures 4, 5 and 6, the construction of the mold 60 is the same as in the preferred embodiment. However, a dummy core 62 is provided for closing either branch 4,

selectively, while the other branch is utilized with one of the cores 35 to mold a single branch tile. The dummy core 62 comprises a cylindrical, hollow member 63 of sheet metal adapted to be attached to the bell-mouth end 5 of the selected branch 4 by a relatively larger diameter, circular closure plate 66, like the closure plate 40, bolted, as at 64, to the end 5 of the branch 4, selected, as in the preferred embodiment with the outer end of the member 63 welded to said plate, as at 67. The inner end of the member 63 is closed and the inner end of the selected branch 4 by an enlarged closure plate 69 oblique to the axis of the member 63 which is welded at its inner end, as at 90, to said plate 69, the plate 69 fitting in the inner end of the selected branch 4, that is to say, in the liner 56, and being curved in correspondence with the outer circumference of the tile 71 to be formed.

As will now be seen, when the mold is set up and placed horizontally in a suitable spinning mechanism, not shown, with the cores 35 in both branches 4, and when the concrete is introduced into the straight end 3 of the mold, a Y-shaped tile 21 will be molded in a tar paper jacket, under the action of centrifugal force with bell-mouth ends. After the concrete has set, for a short period of time, the cores 35 may be deflated and easily pulled out of the molded branches of the tile 21. The sections of the mold may then be detached and the concrete allowed to harden in the liner or jacket 56 so that the mold may be used again to form another tile before the previously formed tile has completely hardened.

By utilizing the dummy core 62 in either branch 4, a tile with a single branch can be molded in the other branch, and by using a dummy core 62 in both branches 4, a straight tile may be molded. As will be obvious, when the dummy core 63 is used, the body of the tile 71 opposite the inner end of the branch 4 in which the dummy is positioned will not be covered by the liner 56, and the tile 71 may be set longer in the mold before the sections of the mold are detached and removed.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly, the invention, as described, is susceptible of modification, without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A mold for forming hollow Y-type tile out of plastic material under the action of centrifugal force comprising a cylindrical body having adjacent one end thereof a pair of opposite cylindrical branches diverging relatively and provided with open outer and inner ends, a pair of cylindrical cores in said branches spaced from the inner circumference thereof and having outer and inner ends terminating at the outer and inner ends of the branches, the inner ends of the cores curving in conformity with the inner circumference of said body, and means detach-

ably attaching the outer ends of the cores to the outer ends of the branches and closing said outer ends of the branches, one of said cores having means thereon closing the inner end of either branch to prevent molding of the material in the branch, and said cores being interchangeable whereby either branch may be utilized for molding purposes selectively.

2. A mold for forming hollow Y-type tile out of plastic material under the action of centrifugal force comprising a cylindrical body having adjacent one end thereof a pair of opposite cylindrical branches diverging relatively and provided with open outer and inner ends, a pair of cylindrical cores in said branches spaced from the inner circumference thereof and having outer and inner ends terminating at the outer and inner ends of the branches, the inner ends of the cores curving in conformity with the inner circumference of said body, and means detachably attaching the outer ends of the cores to the outer ends of the branches and closing said outer ends of the branches, one of said cores having means thereof closing the inner end of either branch to prevent molding the material in the branch, and said cores being interchangeable whereby either branch may be utilized for molding purposes selectively, said last named means comprising a plate on the inner end of said one core fitting in the inner end of either branch and curving in conformity with the inner circumference of said body.

3. A mold according to claim 1, said one core being of sufficient weight to counter-balance the weight of the other core during spinning of the mold.

4. A mold for forming hollow Y-type tile out of plastic material under the action of centrifugal force comprising a cylindrical body having adjacent one end thereof a pair of opposite cylindrical branches diverging relatively and provided with open outer end inner ends, a pair of cores in said branches spaced from the inner circumference thereof and having outer and inner ends, and means detachably attaching the outer ends of the cores to the outer ends of the branches and closing said outer ends of the branches, and a closed channel in said body and branches extending circumferentially of said body at the juncture of said branches with said body for reducing weight of the mold.

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