Dec. 22, 1959 C. L. BARRON 2,917,804

APPARATUS FOR FORMING A LIQUID CONVEYOR DUCT

Original Filed July 3, 1956

Fig. 1

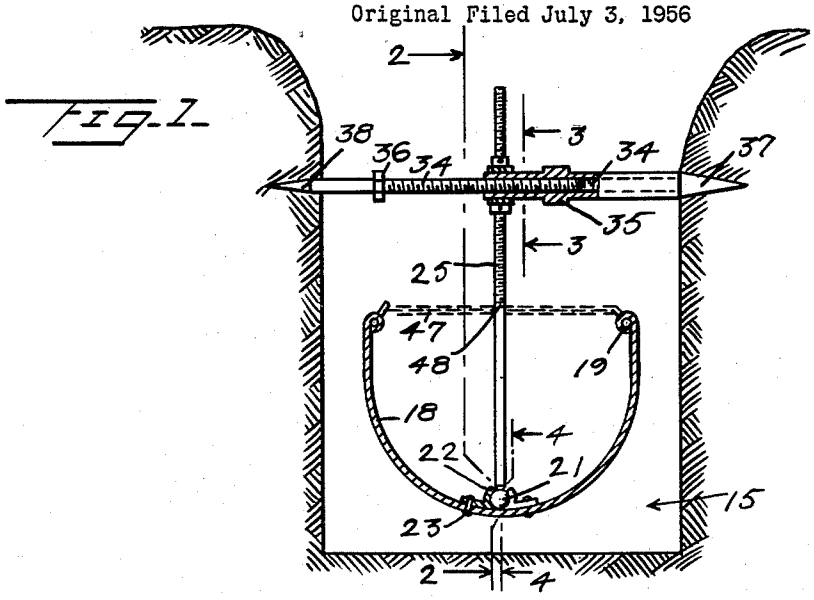


Fig. 2

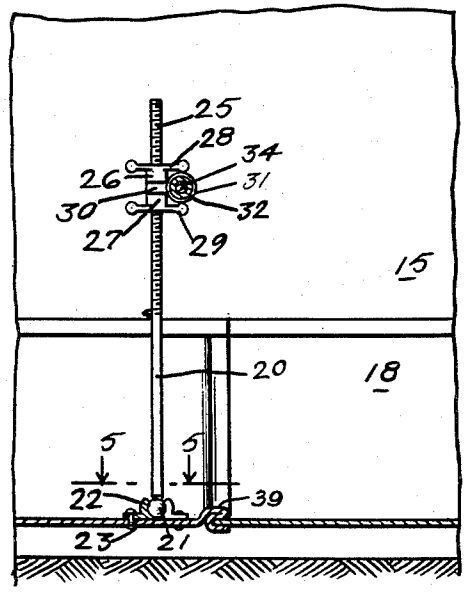


Fig. 3

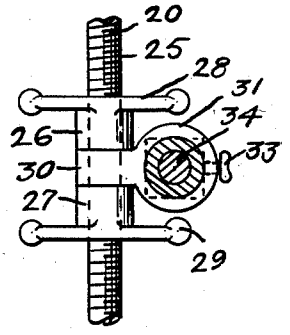


Fig. 4

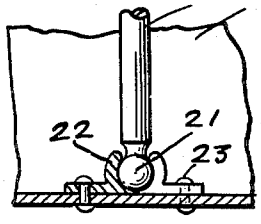
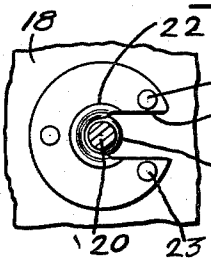


Fig. 5



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APPARATUS FOR FORMING A LIQUID CONVEYOR DUCT

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Original application July 3, 1956, Serial No. 595,667, now Patent No. 2,843,913, dated July 22, 1958. Divided and this application May 15, 1957, Serial No. 659,310

4 Claims. (Cl. 25—131.5)

This invention relates to an apparatus for forming a liquid conveyor duct, and has as its primary object the provision of an improved apparatus for forming embedded concrete ducts for conveying water or other liquid.

This application comprises a division of my Patent No. 2,843,913, entitled Method of Forming a Liquid Conveying Duct, granted July 22, 1958.

A primary object of the invention is the provision of an improved apparatus for making concrete ducts whereby the duct may in the formative stages thereof use a ditch or channel in the earth as an outer form, and an inner form of sheet material suspended between the vertical walls of the ditch or channel.

A further object of the invention is the provision of an improved means for suspending such a sheet metal form interiorly of a ditch during the formative stages thereof.

A further object of the invention is the provision of means whereby the sheet metal form may be readily removed from the concrete duct after the cement has solidified, such means including the means for suspending the form initially.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter and shown in the accompanying drawing which discloses a preferred embodiment of this inventive concept.

In the drawings:

Figure 1 is a vertical sectional view of an inner sheet metal form constructed in accordance with an embodiment of this invention and positioned in suspended relation within a ditch in the earth.

Figure 2 is a fragmentary vertical section taken substantially along the line 2—2 of Figure 1 as viewed in the direction indicated by the arrows.

Figure 3 is an enlarged fragmentary sectional view taken substantially along the line 3—3 of Figure 2 as viewed in the direction indicated by the arrows.

Figure 4 is a fragmentary sectional view taken substantially along the line 4—4 of Figure 1 as viewed in the direction indicated by the arrows, and

Figure 5 is a fragmentary sectional view taken substantially along the line 5—5 of Figure 2 as viewed in the direction indicated by the arrows.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring to the drawings, the numeral 15 designates generally a channel which is formed in the ground. The channel 15 is formed with a horizontal flat bottom wall 16 and vertical side walls 17. The channel 15 is formed of a depth substantially greater than the depth of the concrete duct which is to be formed in the channel so that when the duct has been completed this duct may be covered with dirt. The channel 15 forms the outer concrete form and an inner U-shaped form 18 is adapted to be suspended in the channel 15. The U-shaped form member 18 is provided at its upper edges

with rolled edges 19 and the form member 18 is suspended within the channel 15 by means of a plurality of suspension rods 20. The suspension rods 20 have a ball member 21 at the lower ends which engage in a ball socket 22 fixed by fastening means 23 to the inner concave side of the form member 18. The socket member 22 is formed with a slot or opening 24 so that the ball member 21 may be inserted within the socket member 22 from one side thereof. The suspension rod 20 has threads 25 from a point extending downwardly from the upper end thereof and a pair of nuts 26 and 27 having handles 28 and 29, respectively, are threaded on the threads 25 of rod 20. The rod 20 loosely engages through an apertured ear 30 which projects from a sleeve 31 which is secured in adjusted position on an outer tubular member 32 by means of a set screw 33. The tubular member 32 forms one part of a pair of longitudinally extensible supporting members with an internal member 34 threaded into the outer tubular member 32. The outer tubular member 32 is provided with nut faces 35 and the internal member 34 is provided with nut faces 36. The outer end of the tubular member 32 is provided with a ground piercing point 37 and the outer end of the inner member 34 is provided with a ground piercing point 38. One end of each form member 18 is provided with a U-shaped coupling member 39 within which the adjacent end of an adjacent form member 18 is adapted to slidably engage.

The form member 18 has chains 47 extending thereacross, which are secured to the rolled edges 19 of the form member 18, and the chains 47 include an eye or guide 48 through which the rod 20 loosely engages. These chains 47 provide a means whereby the form member 18 will be held with the straight sides thereof vertical after the manner shown in Figure 1. Concrete is then poured into the channel 15 about the form 18, and after the concrete has set the frame 18 may be loosened and partially lifted from the formed duct by turning the upper nut 26 to pull rod 20 upwardly. In this manner the inner form 18 is loosened from its adherence to the concrete duct, and the form may then be completely removed without injury thereto.

From the foregoing it will now be seen that there is herein provided an improved apparatus adapted for use in the formation of a concrete duct for conveying water or the like, which accomplishes all of the objects of this invention, and other, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and set forth, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. A means for suspending an inner concrete form in a dirt channel comprising an extensible member formed of an internal member and an oppositely extending outer tubular member threadedly connected together, a ground piercing point at one end of each member, a laterally projecting ear carried by one of said members and having a vertical opening therethrough, a vertical rod loosely engaging through said opening, upper and lower nuts threaded on said rod for vertically adjusting said rod, and a ball carried by said rod adapted to engage a socket carried by a form.

2. A means for suspending an inner concrete form in a dirt channel comprising an extensible member formed of an internal member and an oppositely extending outer tubular member threadedly connected together, a ground piercing point at the outer end of each member, a sleeve engaging about the outer one of said mem-

bers, a set screw securing said sleeve in adjusted position on said outer one of said bars, an apertured ear fixed to and projecting laterally of said sleeve, a vertical rod loosely engaging through said ear, a ball carried by said rod, adapted to engage a ball socket carried by a form member, and upper and lower nuts threaded on said rod and bearing against opposite sides of said ear for securing said rod in vertically adjusted position.

3. An apparatus for forming a liquid conveyor duct, said apparatus comprising an expandible member formed of an internal member and an oppositely extending outer tubular member, said members threadedly connected together, a ground piercing point at end of each member, a laterally projecting ear carried by one of said members and having a vertical opening therethrough, a vertical rod loosely engaged through said opening, upper and lower nuts threaded on said rod for vertically adjusting said rod, handles secured to each of said nuts, a U-shaped inner form member and a ball and socket connection between said form member and said rod, a chain having one end secured to the top edge of said U-shaped form, an eye in the approximate center of said chain, the other end of said chain being removably secured to the edge of said U-shaped form and diametrically opposite said attached end of said chain, said suspension rod passing vertically through said eye of said chain, thereby supporting said U-shaped form in the desired position while concrete is poured between said forms and walls of said channel in the ground, thereby forming a liquid conveyor duct.

4. The combination with a channel and an apparatus for forming a liquid conveyor duct, said apparatus being located within said channel, said apparatus comprising a U-shaped form, a suspension rod, said suspension rod extending vertically upward from the bottom of said form, means for pivotally securing the lower end of said suspension rod to the bottom of said form, adjustable means temporarily securing said suspension rod to said channel, a chain having one end secured to the top edge of said U-shaped form, and an eye in the approximate center of said chain the other end of said chain being removably secured to the edge of said U-shaped form and diametrically opposite said attached end of said chain, said suspension rod passing vertically through said eye of said chain thereby supporting said U-shaped form in the desired position while concrete is being poured between said form and the walls of said channel in the ground, thereby forming a liquid conveyor duct.

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