March 31, 1959 W. C. WILCOX, SR 2,879,648

METHOD AND APPARATUS FOR INSTALLING CESSPOOLS OR THE LIKE

Filed Feb. 24, 1956 2 Sheets-Sheet 1

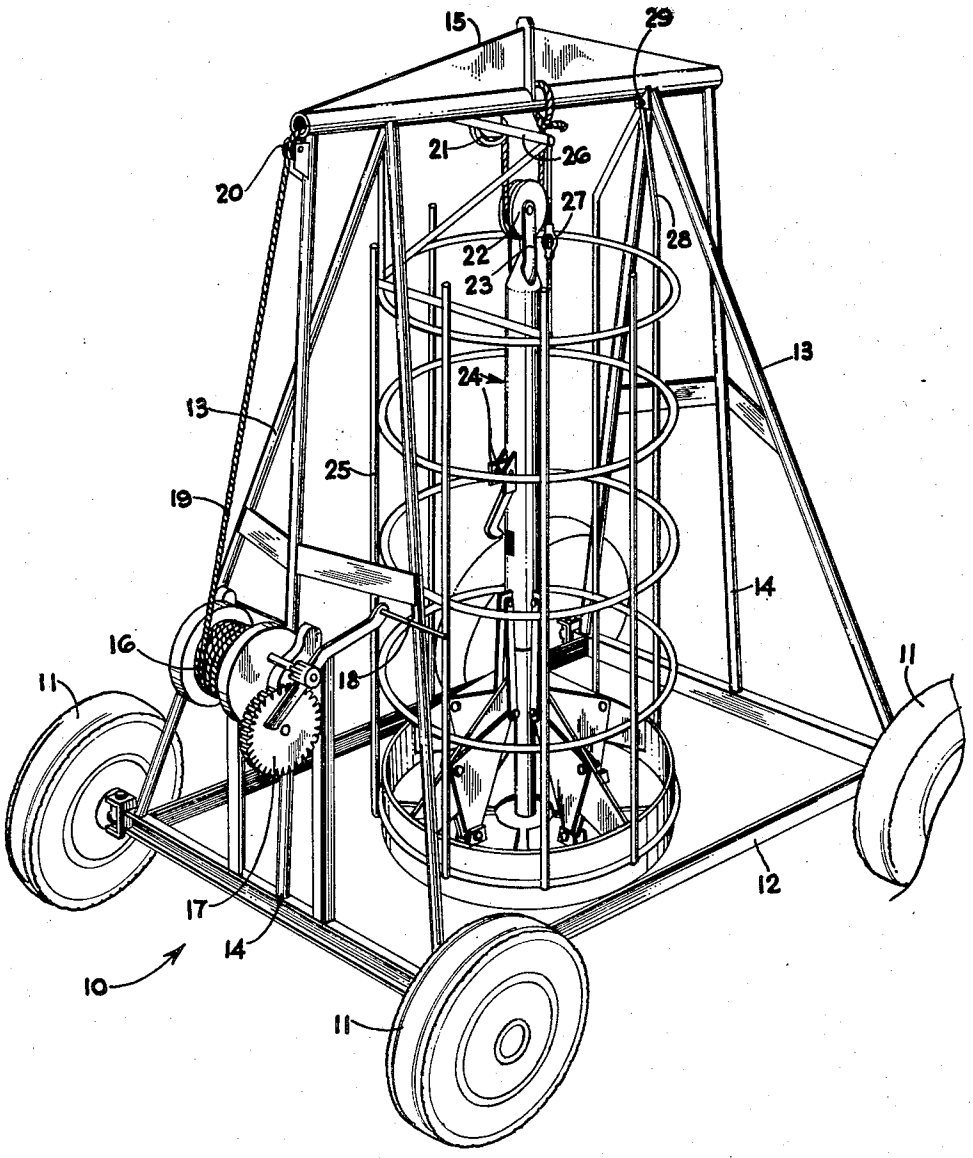



FIG. 1

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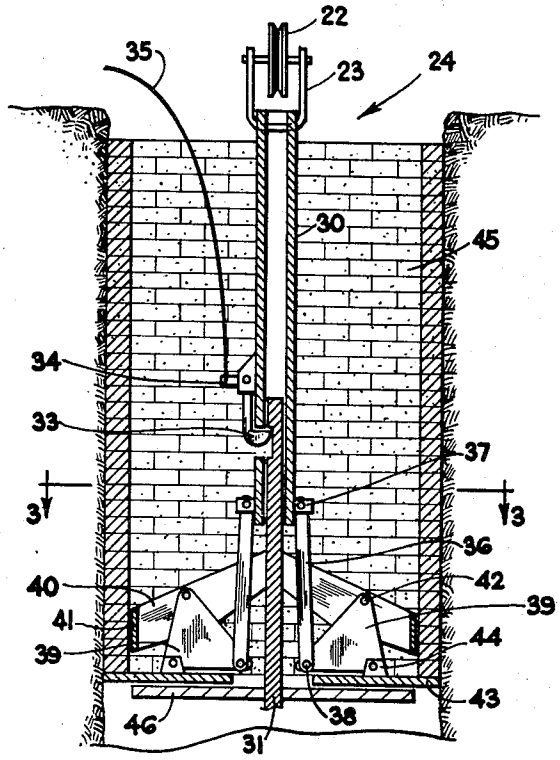



FIG. 2

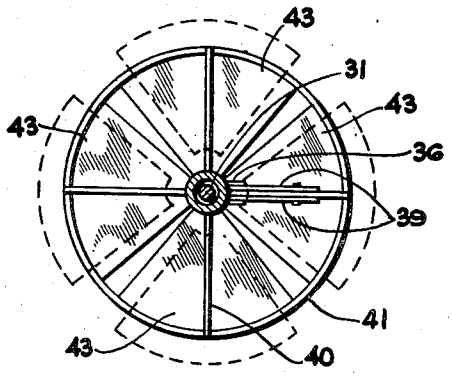



FIG. 3

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# METHOD AND APPARATUS FOR INSTALLING CESSPOOLS OR THE LIKE

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7 Claims. (Cl. 61—63)

This invention relates to a method and apparatus for forming and positioning a sectional wall within a well hole, and more particularly to a method and apparatus for lowering cesspool blocks or the like down into a well hole in a preformed position.

Present day cesspool installation procedure requires the lowering of a man into the well hole to manually place and fit the blocks or wall sections around the well side walls. As a consequence of this procedure, it is necessary to provide another man at the top of the well hole on the ground level to lower additional blocks as the wall structure is progressively completed upwardly to the top of the well. It will be appreciated that this method of installation is cumbersome as well as time consuming, and additionally that a safety hazard results from the possibility of a man or tools falling into the well hole while the cesspool is being formed.

It is, therefore, an object of the present invention to provide a method and apparatus of pre-forming a sectional wall above ground level and thereafter lowering the wall into position within a well hole without the necessity of manual labor being performed within the well hole itself.

A further object of the present invention is to provide a method and apparatus in accordance with the preceding object eliminating dangers presently inherent in cesspool installation methods.

Another object of the present invention is to provide a method and apparatus for pre-forming and positioning a sectional wall within a well hole, which will enable more precise and stable positioning of the sectional wall structure.

A still further object of the present invention is to provide a method and apparatus for pre-forming and positioning a sectional wall within a well hole, which will result in a considerable savings of time in contrast to conventional methods now used, and in which the apparatus may be simply manufactured and maintained while still complying with the rugged structural requirements for equipment in this field.

These and other objects of the present invention are generally achieved by a method which comprises prestacking or pre-forming and holding the sectional wall above the ground level about a given diameter cylindrical fixture or gauge, in accordance with the inner finished diameter desired for the sectional walls. Thereafter, the sectional wall is supported on radial adjustable means, and the radially adjustable means are then lowered into the well, while the fixture remains stationary to serve as a guard fence around the well hole. After the wall is positioned within the well, the radially adjustable means are contracted radially inwardly and removed from the well.

A preferred apparatus of the present invention for accomplishing the method as set forth comprises an equipment designed to be located on the ground level above a well hole and supported within a frame, preferably on



wheels for portability in moving from one work area to another. A cylindrical cage is disposed within the frame and is adjustably supported, whereby it may be leveled to a true vertical position in the event the ground area is not completely level at the working location. A wall positioning tool is axially disposed within the cage, and winch means are secured to the frame of the apparatus and connected to the wall positioning tool through a flexible member in the form of a cable or the like.

Wall supporting means are coupled to a lower portion of the wall positioning tool and extend radially therefrom at a vertical level disposed below the lower end of the cage. The wall supporting means are adapted for radial adjustment from a normal diameter, equal to or less than the diameter of the cage, to an operating diameter greater than the diameter of the cage. Actuating means are provided in the apparatus for controlling this radial adjustment from the ground level. With such a construction, the wall supporting means may be actuated to the operating diameter in order to position the sectional wall within the well hole, and thereafter the wall means may be contracted radially inward to the normal diameter for withdrawal from the well hole.

A better understanding of the present invention will be had by reference to the accompanying drawings, illustrating a preferred embodiment of the apparatus for performing the method of the invention, and in which:

Figure 1 is a perspective view of the apparatus;

Figure 2 is a sectional view through a cesspool hole with the wall positioning tool disposed therein and the wall supporting means extended to the operating diameter; and,

Figure 3 is a bottom view of the wall positioning tool taken in the direction of the arrows 3—3 in Figure 2.

In Figure 1 there is shown a cesspool wall installing apparatus comprising a frame **10** mounted on wheels **11**, whereby the unit may be easily moved to different working areas. The frame **10** includes a base structure **12** from which extend upwardly angled uprights **13** and end members **14**. A cross member **15** forms the upper portion of the frame **10** and is connected to the angled uprights **13** and end members **14** at their upper ends.

A winch **16** may be mounted on a suitable bracket (not shown) provided on one of the end members **14** of the frame. The winch **16** includes conventional gearing **17** and a handle **18** for manual operation. It is evident, however, that the winch **16** may be powered with an electric motor or other driving means if desired.

A cable **19** is connected to the winch **16** and passes upwardly over a pulley **20** secured to the cross member **15**, to thereafter pass downwardly about another pulley **21** to a movable pulley **22**. The end of the cable **19** passes up from the pulley **22** and is appropriately secured to the cross member **15**. The movable pulley **22** is in turn coupled to a U-bracket **23**, shown more clearly in the view of Figure 2. The U-bracket **23** is fastened to the upper end of the wall positioning tool indicated generally at **24**.

A cylindrical cage **25** is disposed within the frame **10** in a vertical position and is adjustably mounted on a hanger **26** connected to the cross member **15** and provided with turn buckles **27**, only one being shown in the drawings. On a diametrically opposite portion of the cage **25**, a member **28** is secured to the cage and extends upwardly to connect with a double hinge **29**, also secured to the cross member **15**. With this type of construction, the cage **25** may be oriented by adjustment of the turn buckles **27** to assume a new vertical position even though the wheels **11** may be disposed in different horizontal planes.

A detailed construction of a preferred embodiment of the wall positioning tool **24** is more clearly shown in the views of Figures 2 and 3. The wall positioning tool **24**

includes a telescoping tubular member 30 having its lower end positioned around an inner rod 31. A keyway 32 is provided in an upper portion of the rod 31, and is adapted to receive a dog 33 which is pivotably secured as at 34 to the outer periphery of the tubular member 30. Thus, in the position shown in Figure 2, the tubular member 30 and inner rod 31 are locked in an axial position with respect to each other.

In order to permit telescoping of the tube 30 upwardly with respect to the inner rod 31, a rope 35 or the like is attached to the dog 33 and may be pulled at the ground level to in turn disengage the dog from the keyway 32, whereby the outer tubular member 30 is free to slide on the inner rod 31.

Linkage arms 36 are hinged to the lower end of the tubular member 30, as at 37, and extend downwardly to lower hinges 38 coupled to triangular sections 39. Preferably, four sets of linkage arms 36 are employed, one member of each set passing down along either side of fins 40 extending from the inner rod 31 to a rim section 41.

The triangular sections 39 are rotatably coupled at 42 to the fins 40 and are also desirably designed to be in paired relationship on either side of the fins 40 to correspond with the sets of linkage arms 36.

The wall supporting means provided in the preferred embodiment comprises a plurality of quadrantal plates 43, shown clearly in Figure 3, hinged at 44 to the triangular sections 39. In the view of Figure 2, the plates 43 are disposed in their radially extended position in order to support the wall sections 45 being lowered into the hole. In the view of Figure 3, the plates 43 are shown by the solid lines in their radially contracted position or normal diameter before operations have commenced, and by the dotted lines in their expanded positions for the wall lowering step.

In operation, the apparatus is first positioned so that the bottom end of the rod 31 is solidly supported. Thereafter, the tubular member is allowed to impress its weight on the linkage arms 36 and actuate the triangular members 39 to force the quadrantal plates 43 radially outward to the dotted line position of Figure 3. At this time, the apparatus is brought into position over the cesspool hole and the wall positioning tool 24 is lowered by the winch 16 and cable 19 to a position slightly below the level of the cage 25, whereby it is free for movement to seek a true vertical position. The cage 25 is then vertically leveled by the turn buckles 27 to be co-axial with the wall positioning tool 24. The wall positioning tool 24 may then be raised to a level approximately aligned with the lower end of the cage 25, preparatory to the stacking or forming of the sectional wall.

The wall forming operation may then be commenced. The arcuately shaped wall sections 45 or cesspool bricks are then stacked in an array on the terminal portions of the plates 43 around the outer periphery of the cage 25.

After the wall has been formed to the height of the cage 25, the winch 16 may be operated through the cable 19 to lower the wall positioning tool 24 with the blocks 45 stacked thereon down into position within the hole. Meanwhile, the cage 25 will remain stationary in position above the hole to act as protection against inadvertent falling of men or equipment down into the cesspool. If the hole is deeper than the length of the cage 25, additional wall sections 45 may be stacked in an array around the cage 25 as the tool 24 is lowered.

A bottom plate 46 is secured to the lower end of the inner rod 31 and acts as a stop when it comes to rest on the bottom of the hole. Thereafter, the rope 35 is actuated upwardly, to in turn rotate the dog 33 about the pivot point 34 and release it from the keyseat 32 of the inner rod 31. As a consequence of this action, with an upward force applied to the tubing 30 the linkage arms 36 will be urged upwardly to thereby force the triangular plates 39 upwardly at the hinge points 38 and cause the wall supporting plates 43 to move radially inwardly out of position from underneath the wall sections 45. The plates 43 will then be in the position shown by the solid lines in Figure 3 and the wall positioning tool 24 may be raised out of the hole by the winch means 16.



It is evident from the foregoing description that the method and apparatus of the present invention enable a more efficient and safe procedure for installing cesspool walls or equivalent structures. In addition, the apparatus employed is of a rugged and durable construction requiring limited maintenance and yet being susceptible of economical manufacture.

It will be appreciated that various details of construction can be varied without departing from the spirit and scope of the invention, and the invention, therefore, is not to be thought of as limited to the particular preferred embodiment shown and described with respect to the drawings, but rather is defined in accordance with the scope of the following claims.

What is claimed is:

1. An apparatus for location on the ground level above a well hole and designed for the positioning of a sectional wall therein, said apparatus comprising: a frame; a cylindrical cage having a given diameter; means vertically supporting said cage within said frame in an operative position over said well hole above said ground level such that said cage may serve the dual function of a gauge for forming said wall to said given diameter and as a guard for said hole upon positioning of said wall therein; a wall positioning tool axially disposed within said cage; winch means secured to said frame and connected to said wall positioning tool; wall supporting means coupled to and functioning as a part of said wall positioning tool, said wall supporting means being normally disposed below the lower end of said cage; actuating means on said wall positioning tool for radially adjusting said wall supporting means from a normal diameter no greater than said given diameter to an operating diameter greater than said given diameter, whereby said wall supporting means may be actuated to said operating diameter for positioning said sectional wall within said well hole and thereafter contracted to said normal diameter for withdrawal therefrom.

2. An apparatus according to claim 1, in which said wall positioning tool comprises: an upper telescoping member secured to said winch means; and a lower telescoping member coupled to said upper telescoping member for limited relative movement thereto, in which said relative movement of said upper member and said lower member effects the operation of said actuating means.

3. An apparatus according to claim 2, in which said actuating means includes a removable key member axially coupling and adapted to maintain said upper telescoping member and said lower telescoping member in stable relationship while said sectional wall is positioned in said well hole.

4. An apparatus according to claim 2, in which said actuating means includes linkage means coupled between said upper telescoping member and said lower telescoping member for radially adjusting said wall supporting means in response to said limited relative movement.

5. An apparatus for location on the ground level above a well hole and designed for the positioning of a sectional wall therein; said apparatus comprising: a frame; a cylindrical cage having a given diameter; means vertically supporting said cage within said frame in an operative position over said well hole and above said ground level such that said cage may serve the dual function of a gauge for forming said wall to said given diameter and as a guard for said hole upon positioning of said wall therein; a wall positioning tool axially disposed within said cage, said wall positioning tool comprising an upper telescoping member and a lower telescoping member coupled together for limited relative movement; winch means secured to said frame and connected to said wall positioning tool; wall supporting means functioning as a part of said wall posi-

tioning tool and coupled to said upper telescoping member and said lower telescoping member, said wall supporting means being normally disposed below the lower end of said cage and comprising sector shaped members adapted for radial expansion and contraction with respect to said wall positioning tool; and, actuating means associated with said wall positioning tool for effecting said expansion and said contraction in response to said relative movement.

6. An apparatus, according to claim 5, in which fins extend radially outwardly from said lower telescoping member above said sector shaped members, and in which said actuating means includes linkage means coupled to each of said fins, to said upper telescoping member, and to each of said sector shaped members.

7. An apparatus, according to claim 6, in which said



linkage means comprises: linkage arms having their upper ends connected to said upper telescoping member; triangular shaped members, each of which is coupled at one corner to the lower end of one of said linkage arms, and each of which is coupled at a second corner to one of said fins, and each of which is coupled at a third corner to one of said sector shaped members.

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