

Sept. 10, 1957

W. M. CHANDLER ET AL

2,805,462

CONCRETE FORMS

Filed June 3, 1954

5 Sheets-Sheet 1

FIG. 1

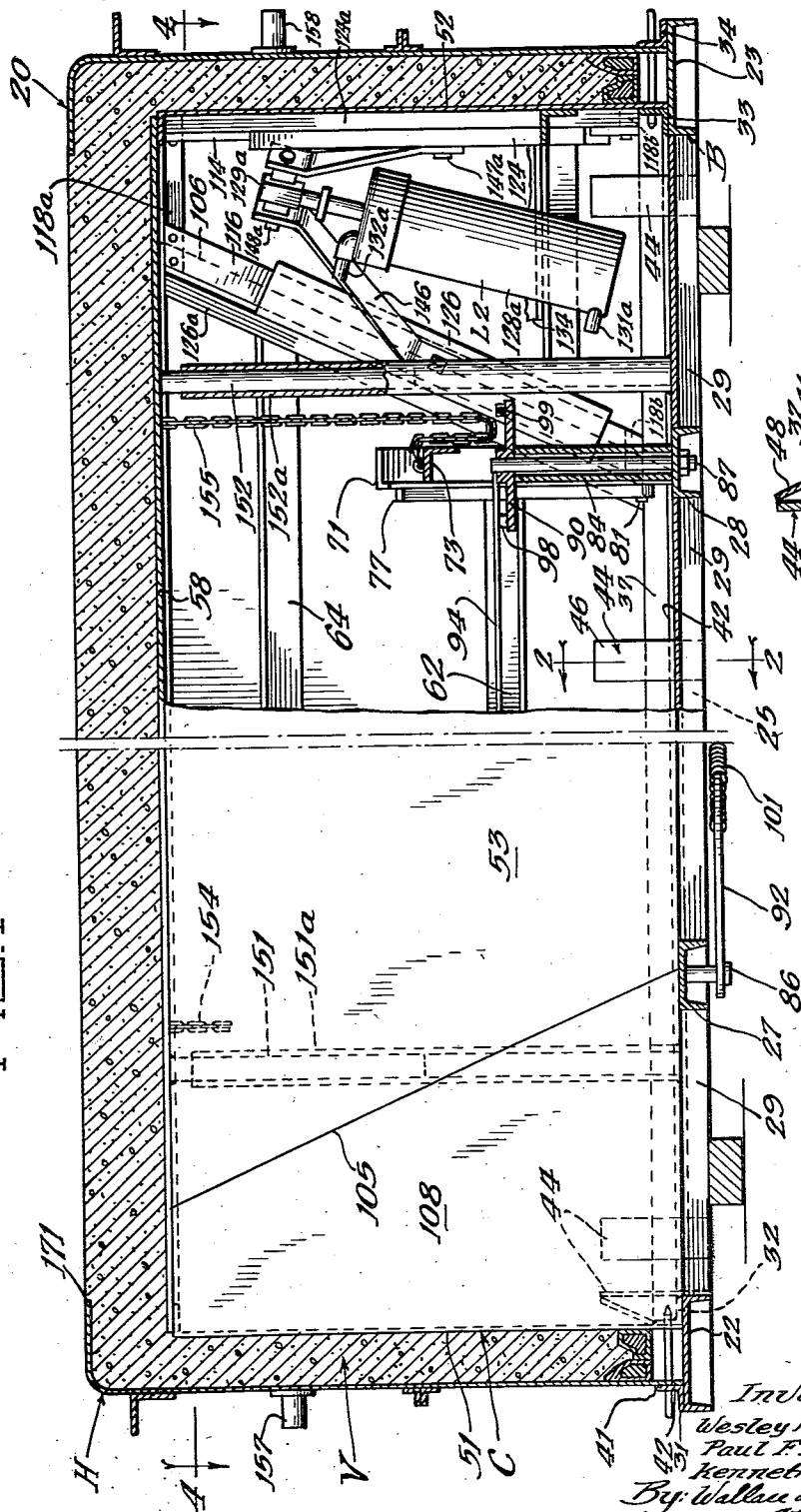
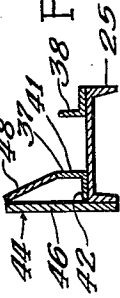


FIG. 2



Inventors:
Wesley M. Chandler
Paul F. Heuser
Kenneth C. Smith
By: Wallace and Cannon
ATTORNEYS

Filed June 3, 1954

CONCRETE FORMS

5 Sheets-Sheet 2



Inventors:
Wesley M Chandler
Paul F Heuser
Kenneth C. Smith
By: Wallace and Cannon
Attorneys

Sept. 10, 1957

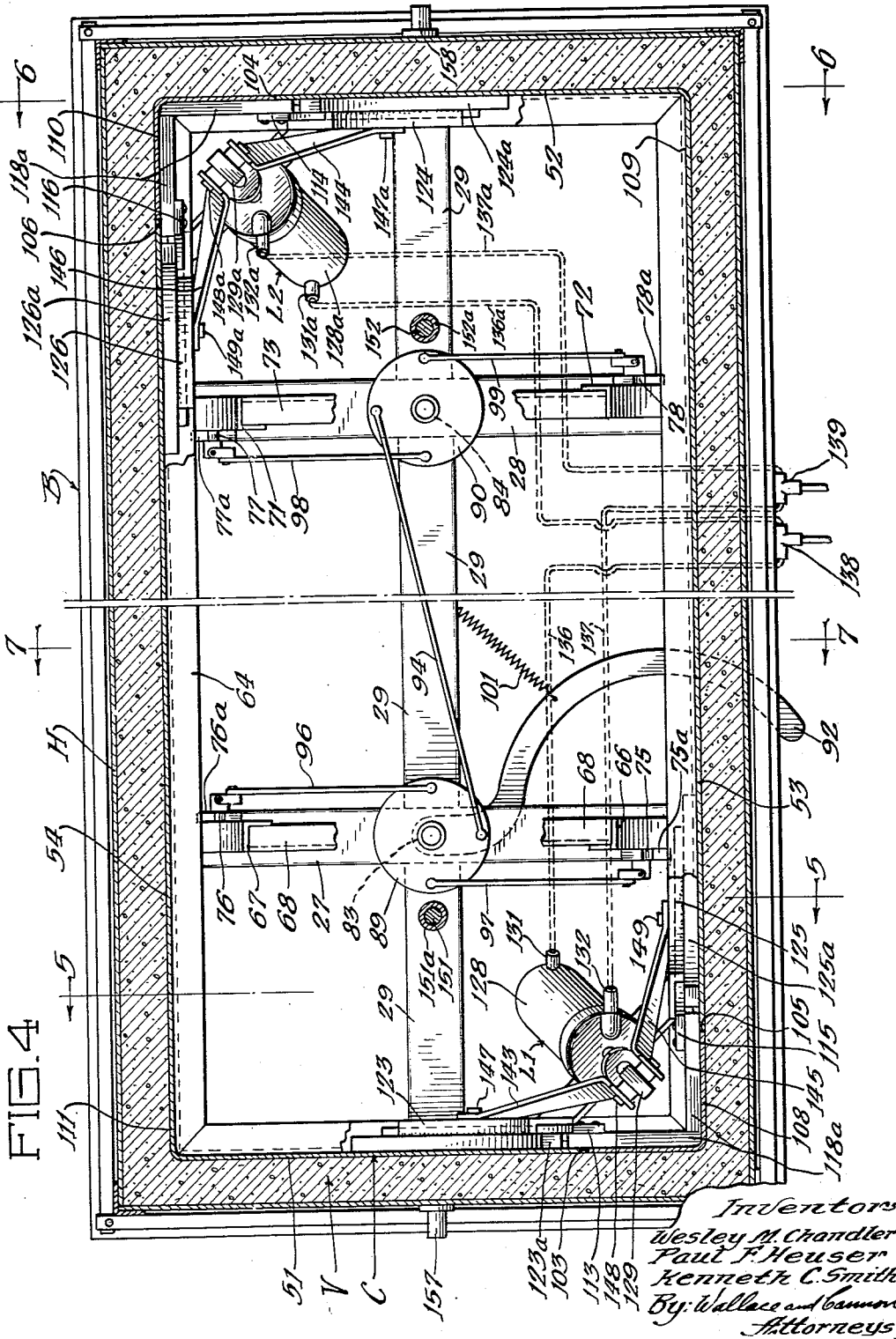
W. M. CHANDLER ET AL

2,805,462

CONCRETE FORMS

Filed June 3, 1954

5 Sheets-Sheet 3



1

2,805,462

CONCRETE FORMS

Wesley Miles Chandler, Paul Fred Heuser, and Kenneth Carl Smith, St. Paul, Minn., assignors to Wilbert W. Haase Co., Forest Park, Ill., a corporation of Illinois

Application June 3, 1954, Serial No. 434,252

7 Claims. (Cl. 25—130)

This invention relates to forms and, more particularly, of the type particularly well adapted for molding burial vaults, septic tanks, hollow blocks, and the like.

It will be understood that reference hereinafter to burial vaults, and the like, is merely by way of illustration and not by way of limitation and that forms embodying the principles of our invention may be constructed and used for forming other articles without departing from the purview of our invention.

A primary object of our invention is to afford a novel form which may be released from the finished burial vault, or the like, in a novel and expeditious manner.

Another object of our invention is to enable a form of the aforementioned type to be constructed which embodies a novel core which may be loosened from the finished burial vault, or the like, in a novel and expeditious manner.

Yet another object of our invention is to enable a core of a burial vault form, or the like, to be shrunk in length and width in a novel and expeditious manner.

A further object of our invention is to enable portions of the core of a form to be readily moved relative to each other in a manner effective to loosen the core from the finished burial vault, or the like, in a novel manner.

Another object is to enable a core of the aforementioned type to be constructed in such a manner that various portions thereof may be moved vertically and laterally and longitudinally relative to each other to thereby vary the size of the core in a novel and expeditious manner.

Another object of our invention is to afford a form of the aforementioned type wherein the core thereof may be quickly and easily released from the finished burial vault, or the like, and may then be quickly and easily restored to operative position, in a novel and expeditious manner, for repeated use.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show preferred embodiments of the present invention and the principles thereof and what we now consider to be the best mode in which we have contemplated applying these principles. Other embodiments of the inventions embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a longitudinal sectional view taken through a burial vault form embodying the principles of our invention and showing the core thereof in side elevation with certain portions broken away to show the internal construction thereof;

Fig. 2 is a detail sectional view taken substantially along the line 2—2 in Fig. 1;

Fig. 3 is a sectional view somewhat similar to Fig. 1

2

but showing the parts thereof disposed in different operative position.

Fig. 4 is a sectional view taken substantially along the line 4—4 in Fig. 1;

Fig. 5 is a sectional view taken substantially along the line 5—5 in Fig. 4;

Fig. 6 is a sectional view taken substantially along the line 6—6 in Fig. 4;

Fig. 7 is a sectional view taken substantially along the line 7—7 in Fig. 4;

Fig. 8 is a detail sectional view taken substantially along the line 8—8 in Fig. 7; and

Fig. 9 is a detail sectional view taken substantially along the line 9—9 in Fig. 7.

For the purpose of illustrating the preferred embodiment of our invention, a form 20 is shown in Figs. 1 to 9, inclusive, of the type adapted to mold a suitable receptacle such as, for example, the box portion V of a burial vault.

The form 20 comprises, in general, Figs. 1 and 4, an inner housing or core C mounted on a supporting member or base B, and a suitable outer housing or shell, such as the housing H, mounted on the base B over the core C to thereby form a mold for forming a box V.

In general, during the operation of the form 20, the core C is mounted in operative position on the base B, and the housing H is mounted on the base B outwardly of the core C and in spaced parallel relation thereto. The material from which the box V is to be formed may then be poured into the space between the core C and the housing H. After the material from which the box V is formed is suitably hardened the box V may then be raised off from the core C, removal of the core C from the box V being facilitated by novel means embodied in our invention, as will be discussed in greater detail presently. During this operation of raising the box V the outer housing H is allowed to remain in position on the box V to facilitate gripping and handling the assembly.

The base B, Figs. 1 and 5, comprises a substantially rectangular shaped frame embodying two end members 22 and 23, Fig. 1, and two side members 24 and 25, Fig. 5. Suitable braces such as transversely extending braces 27 and 28, and longitudinally extending braces 29, Figs. 3 and 5, are disposed between the members 22—25 of the base B for strengthening and re-enforcing the base B. The members 22—25 and braces 27—29 are preferably formed of channel shaped steel structural members and disposed in inverted position with the web thereof disposed in upwardly facing, substantially horizontal position.

Four pairs of elongated retaining members or braces 31 and 32, 33 and 34, 35 and 36, and 37 and 38, respectively, are mounted on the top surface of the members 22—25, respectively, with each of the pairs of braces 31—38 disposed in longitudinally extending position on the respective side members 22—25 in spaced parallel relation to each other. The braces 31, 34, 35 and 38 are the outwardly disposed braces of the respective pairs, and the braces 32, 33, 36 and 37 are the inwardly disposed braces thereof.

The braces 31—38 may be made of any suitable material, but we prefer to make them of angle iron, each having an upwardly projecting leg 41 and a horizontally disposed leg 42, the latter leg 42 being mounted on the top surface of the respective side member 22—25 and being secured thereto by any suitable means such as welding.

Guide members 44 are mounted on the top surface of each of the side members 22—25 in spaced relation to each other along the inner braces, 32, 33, 36 and 37, Figs. 1, 2 and 6. Each of the guide members 44 com-

prises a substantially vertical leg 46, Fig. 2, and a downwardly and outwardly sloping leg 48, the vertical leg being secured to the inner peripheral edge of the respective side member 22—25 and the leg 48 sloping downwardly and outwardly from the upper end of the leg 46 into engagement with the upper edge of the vertical flange 41 on the respective corresponding braces 32, 33, 36 and 37 to thereby afford means for guiding the core C down into operative position around the inner braces 32, 33, 36 and 37 when the core C is being mounted in operative position on the base B.

The core C, Figs. 1 and 5, comprises two substantially vertically disposed end walls 51 and 52 and two substantially vertically disposed side walls 53 and 54. Each of the walls 51—54 has an inwardly projecting flange 56 disposed on the upper end thereof, and a substantially flat rectangular-shaped removable cover member or top plate 58 loosely rests on the flanges 56. The top plate 58 is preferably of such size that the outer edges thereof are disposed just inwardly of vertical alignment with the outer faces of the corresponding walls 51—54 of the core C when the core C is disposed in operative position on the base B for the reception of vault or box forming material therearound. The walls 51—54 and the top plate 58 of the core C may be made of any suitable material such as, for example sheet steel.

Re-enforcing members in the form of angle irons 61 and 62 are attached to the inner faces of the side walls 53 and 54, respectively, by suitable means such as welding and extend longitudinally along the side walls 53 and 54 in substantially parallel relation to each other and to the bottom edges of the side walls 53 and 54 in spaced relation to the latter. Similar other re-enforcing members 64, Figs. 1, 5 and 7 may also be mounted at other locations on the inner face of the side walls 51—54 of the core C, as desired, to re-enforce the latter.

Two posts 66 and 67, Figs. 4 and 7, are mounted on opposite end portions of the cross member 27 and project upwardly and inwardly therefrom. The upper end portions of the posts 66 and 67 are braced in such inwardly projecting position by a suitable elongated brace member 68 extending therebetween, Fig. 7. Similarly, two posts 71 and 72 are mounted on opposite end portions of the cross brace 28 of the base B and are braced at their upper end portions by a bracing member 73 extending therebetween, Fig. 4.

Four pawls, 75, 76, 77 and 78 are pivotally mounted at their lower end portions to the lower end portions of the posts 66, 67, 71 and 72, respectively, by suitable means such as bolts 81, Figs. 4 and 7. Each of the pawls 75—78 has an upwardly facing, outwardly projecting ear 75a, 76a, 77a and 78a, respectively, disposed at its upper end portion, Figs. 4 and 7.

Two sleeves 83 and 84, Figs. 1, 4 and 7, are mounted on and project upwardly from the longitudinal center portions of the cross braces 27 and 28, respectively. Two shafts 86 and 87 are journaled in the sleeves 83 and 84, respectively, and two disks 89 and 90 are mounted on the upper end portions of the shafts 86 and 87 for rotating movement relative to the sleeves 83 and 84. The lower end portions of the shaft 86 projects downwardly below the sleeve 83 and a handle 92 is connected to the lower end portion of the shaft 86 and projects outwardly from the base B to afford readily accessible means for manually rotating the shaft 86 from a position outwardly of the base B. The disks 89 and 90 are operatively connected together by a link 94 extending therebetween so that rotation of the disk 89 is effective to rotate the disk 90. The upper end portions of the pawls 75 and 76 are connected to the disk 89 by suitable links, 96 and 97, Figs. 4 and 7 so that oscillation of the disk 89 is effective to move the upper end portions of the pawls 76 and 76 inwardly and outwardly around the pivots 81. Likewise, the upper end portions of the pawls 77 and 78 are connected to the disk 90 by suitable

links 98 and 99, respectively, so that the pawls 77 and 78 are similarly actuated upon oscillation of the disk 90. A spring 101 is connected at one end to the handle 92 and at the other end to the cross brace 29 in position to urge the handle 92 and, therefore, the shaft 86, to rotate in a counterclockwise direction, as viewed in Fig. 4, and thereby urge the upper end portions of pawls 75—78 outwardly toward the adjacent wall 53 or 54 of the core C.

In normal position, the ears 75a—78a on the pawls 75—78 are disposed in overlying spaced relation to the bracing members 61 and 62, the ears 75a and 77a being disposed above the bracing member 61 and the ears 76a and 78a being disposed above the bracing member 62. When the core C is lifted upwardly in the vault forming operation of our novel form 20, as will be discussed in greater detail presently, the bracing members 61 and 62 engage the lower portions of the ears 75a and 77a, and the ears 76a and 78a, respectively, and cam the pawls 75—78 inwardly against the urging of the spring 101. When the bracing members 61 and 62 move upwardly past the upper faces of the ears 75a—78a, the spring 101 is effective to move the pawls 75—78 outwardly into position wherein the ears 75a—78a are disposed beneath the bracing members 61 and 62 in position to support the core C in elevated position. When it is desired to again lower the core C from this upwardly supported position, the handle 92 may be manually rotated in a clockwise direction, as viewed in Fig. 4, against the urging of the spring 101 to thereby retract the pawls 75—78 and permit the core C to drop downwardly on to the base B, the guide members 44 serving to guide the core C into proper position on the base B.

Each of the walls 51—54 of the core C is transversely split from top to bottom along a line 103, 104, 105 and 106, respectively, Figs. 1 and 6, which are disposed at acute angles to the horizontal. Thus it will be seen that the core C is divided along the lines 103—106 into four corner sections 108, 109, 110 and 111, Fig. 4, the corner section 108 comprising the portion of the end wall 51 and the side wall 53 disposed between the lines 103 and 105; the corner portion 109 comprising the portion of the side wall 53 and the end wall 52 disposed between the lines 105 and 104; the corner section 110 comprising the portion of the end wall 52 and the side wall 54 disposed between the lines 104 and 106; and the corner section 111 comprising the portion of the side wall 54 and the end wall 51 disposed between the lines 106 and 103. Thus it will be seen that the corner sections 108 and 110, which are disposed diagonally opposite to each other, are considerably shorter in length than are the corner sections 109 and 111, which are, likewise, disposed diagonally opposite to each other. In the operation of our novel form 20, the corner sections 108 and 110 are moved downwardly relative to the corner sections 109 and 111 along the pairs of lines 103 and 105, and 104 and 106, respectively, to facilitate removal of the core C from a burial vault, or the like, which has been molded therearound, as will be discussed in greater detail hereinafter.

It will be noted that the lines 103 and 105 are disposed in the end wall 51 and the side wall 53, respectively, in position wherein the upper end portions of the lines 103 and 105 are disposed in proximity to, but in spaced relation to, the junction between the walls 51 and 53 and lines 103 and 105 slant downwardly and outwardly away from the junction of the walls 51 and 53. The lines 104 and 106 are similarly located relative to the junction between the end wall 52 and the side wall 54, the upper end portions of the lines 104 and 106 being disposed relatively close to the junction between the walls 52 and 54 and sloping downwardly and outwardly therefrom to the bottom of the walls 52 and 54.

In practice, we prefer that the lines 103 and 105 be disposed equal distances from, and at the same diverging angle to, the junction of the end wall 51 and the side wall 53, and that the lines 104 and 106 be similarly positioned relative to the junction of the end wall 52

5

and the side wall 54. In any event, so as to avoid tilting or canting of the corner sections 108—111 relative to each other upon movement of the sections 108 and 110 downwardly relative to the sections 109 and 111, the lines 103 and 104 should be disposed at equal but oppositely opening acute angles to the horizontal, and the lines 105 and 106 should, likewise, be disposed at equal but oppositely opening acute angles to the horizontal.

Four elongated track members 113, 114, 115 and 116 made of suitable material such as, for example, strap steel are mounted on the inner faces of the walls 51—54 of the core C in parallel overlying relation to the lines 103—106, respectively. Each of the tracks 113—116 is attached at its upper and lower ends to elongated spacing straps 118a and 118b, respectively, Figs. 6, 7 and 9, and the spacing straps 118a and 118b are attached to the upper and lower edge portions of the proper side walls 51—54 of the core C to thereby support the intermediate portion of each track 113—116, between the respective pair of straps 118a and 118b, in proper operative position over the respective lines 103—106 and in spaced relation to the adjacent portions of the side walls 51—54. The tracks 113—116 are attached in this manner to the corner sections 108 and 110, through their respective pairs of spacing straps 118a and 118b, with the track 113 being attached to the end wall 51 between the line 103 and the side wall 53; the track 114 being attached to the end wall 52 between the line 104 and the side wall 54; the track 115 being attached to the side wall 53 between the lines 105 and the end wall 51; and the track 116 being attached to the side wall 54 between the line 106 and the end wall 52.

Four elongated slides or carriages 123—126 are slidably mounted on the tracks 113—116, respectively, Figs. 1, 4 and 5. Each of the slides 123—126 has a substantially rectangular shaped opening extending longitudinally therethrough, Fig. 8, and the respective track 113—116 is disposed therein in snugly fitting but freely slidable relation thereto.

Four elongated mounting strips 123a—126a are disposed adjacent to the slides 123—126, respectively, and are secured thereto by suitable means such as, for example, welding, Figs. 4, 7 and 8. Mounting strips 123a—126a are secured to the walls 51, 52, 53 and 54, respectively, adjacent to the lines 103, 104, 105, and 106, respectively, but preferably spaced from the latter sufficiently that the slides 123—126 and the tracks 113—116 may be disposed in such position that the longitudinal center lines thereof are disposed in overlying parallel relation to the lines 103—106, Figs. 4 and 5. The mounting strips 123a—126a are attached to the corner sections 109 and 111, with the mounting strip 123a being attached to the end wall 51 of the core C between the line 103 and the side wall 54, Fig. 5; the mounting strip 124a being attached to the end wall 52 of the core C between the line 104 and the side wall 53, Fig. 4; the mounting strip 125a being attached to the side wall 53 of the core C between the line 105 and the end wall 52; and the mounting strip 126a being attached to the side wall 54 of the core C between the line 106 and the end wall 51. It will be noted that the upper and lower ends of the mounting strips 123a—126a terminate substantially flush with the upper and lower edges of the respective side walls 51—54 to which they are attached, and that the slides 123—126 are attached to the longitudinal center portions of the mounting strips 123a—126a in spaced relation to the outer ends of the latter.

Two lifting members L1 and L2 are mounted in the core C adjacent to the corner sections 108 and 110, respectively, Fig. 4. The lifting member L1 may comprise a suitable fluid motor such as a pneumatically or hydraulically operated jack embodying a substantially cylindrical shaped casing or housing 128 in which is mounted the usual piston or plunger 129. Two inlet and outlet ports 131 and 132 are provided in the lower and upper end por-

6

tions of the housing 128, respectively, so that suitable working fluid such as, for example, compressed air may be fed into the cylinder 128 through the ports 131 or 132 to thereby cause raising or lowering of the plunger 129 in the housing 128 in the usual manner.

The jack L1 is mounted in the corner section 108 by suitable supporting means such as a bracket 134 attached at one side to the cylinder 128 and at the opposite side to the portions of the walls 51 and 53 disposed between the lines 103 and 105 by suitable means, such as, welding, Figs. 4, 5 and 8. Working fluid may be fed into the ports 131 and 132 through any suitable means but we prefer to use flexible lines such as hoses 136 and 137, Fig. 4 which extend outwardly from the ports 131 and 132, respectively, to coupling members 138 and 139 mounted on the outer face of the side member 24 of the base B to facilitate coupling of suitable pressure supplying means such as, for example, an air compressor, not shown, to the lines 136 and 137.

The plunger 129 is connected to the slide 123 by an elongated link 143, Figs. 4 and 5, which is attached at its lower end to the slide 123 by suitable means such as a bolt 147 and is attached at its upper end to the upper end portion of the plunger 129 by suitable means such as a bolt 148. The upper end portion of the plunger 129 is also attached to the slide 125 by a link 145 connected at its lower end to the slide 125 by a bolt 149 and connected at its upper end to the upper end portion of the plunger 129 by the bolt 148, Figs. 4 and 5.

The lifting member L2 is similar to the lifting member L1, comprising a housing or casing 128a and a plunger or piston 129a, the casing having ports 131a and 132a connected to the coupling members 138 and 139, respectively, by suitable lines such as hoses 136a and 137a, respectively. The plunger 129a is attached to the slide 124 by a link 144 connected at its lower end portion to the slide 124 by a bolt 147a and connected at its upper end portion to the upper end of the plunger 129a by a bolt 148a. Similarly, the plunger 129a is connected to the slide 126 by a link 146, the lower end portion of the link 146 being connected to the slide 126 by a bolt 149a and being connected to the upper end portion of the plunger 129a by the bolt 148a.

Hence it will be seen that when working fluid such as, for example, compressed air, is fed under pressure into the coupling member 138, the air flows through the coupling member 138 through the line 136 and 136a and ports 131 and 131a into the lower end portions of the housings 128 and 128a and is thereby effective to raise the plungers 129 and 129a, relative to the cylinders 128 and 128a, respectively. Also, it will be seen that when air is fed under pressure through the coupling member 139 it flows through the line 137 and 137a and the ports 132 and 132a into the cylinder 128 and 128a to thereby effect lowering of the plunger 129 and 129a relative to the cylinders 128 and 128a, respectively. Hence, it will be seen that with this arrangement, simultaneous raising and lowering of the plungers 129 and 129a is effected by the introduction of working fluid under pressure into the coupling members 138 and 139, respectively.

It will be seen that with the parts of our novel core C disposed in the manner disclosed herein, raising and lowering of the plunger 129 and 129a in the cylinder 128 and 128a is effective to cause opposite relative longitudinal reciprocation of the slides 123 and 125 and the tracks 113 and 115, and of the slides 124 and 126 and the tracks 114 and 116, respectively, to thereby effect raising and lowering of the two corner sections 109 and 111 and the two corner sections 108 and 110 relative to each other along the diagonally extending lines 104 and 105, and 103 and 106, respectively, Fig. 3. Such relative movement of the corner sections 109 and 111, and 108 and 110 is effective to shrink the core C in a horizontal direction both laterally and longitudinally so that when this operation is accomplished with the core C disposed

in a completed burial vault, or the like, it is effective to positively move the walls 51—54 of the core C entirely out of engagement with the corresponding adjacent side walls of the burial vault.

Two guide rods 151 and 152, Fig. 1, are attached at their upper ends to the lower face of the top plate 58 of the core C by suitable means such as, for example, welding. The guide rods 151 and 152 project downwardly from the top plate 58 and extend into guide sleeves 151a and 152a, respectively, which are mounted at their lower ends to the longitudinally extending brace 29 in the base B. The guide sleeves 151a and 152a extend upwardly from the brace 29 and terminate at their upper end portions in spaced relation to the top plate 58 when the latter is disposed in normal operative position on the walls 51—54 of the core C. Two chains 154 and 155 are attached at one end to the lower face of the plate 58 adjacent to the guide rods 151 and 152, respectively, Fig. 1. The chains 154 and 155 depend from the plate 58 and are attached at their other ends to the brace members 68—73, respectively, Figs. 1 and 7. Chains 154 and 155 are of such length that when the top plate 58 is disposed in normal position on the walls 51—54 of the core C a suitable amount of slack is afforded therein so that the chains 154 and 155 hang loosely from the top plate 58, Fig. 1. However, the chains 154 and 155 are of sufficiently short length to insure that the top plate 58 may not be raised from the walls 51—54 a sufficient distance to pull the guide rods 151 and 152 from the sleeves 151a and 152a so that, when the vault V is lifted from the core C the chains 154 and 155 are effective to pull the top plate 58 out of engagement with the top wall of the vault V and thereby permit it to drop back downwardly on the flanges 56 of the walls 51—54 of the core C, the guide rods 151 and 152 being effective to properly guide the top plate 58 during this downward movement of the latter.

From the foregoing, it will be seen that in the operation of a form embodying our novel invention, the core C may be mounted on a suitable base such as the base B in normal operative position such as shown in Fig. 1 wherein the plunger 129 and 129a are in retracted position and the upper edges of the walls 51—54 lie in the same horizontal plane, with the top plate 58 disposed on the flanges 56 thereof. A suitable outer shell or housing such as the housing H may then be mounted in operative position outwardly of the core C in position to define, with the core C an area into which material for forming a receptacle such as the box V of a burial vault may be poured. As will be appreciated by those skilled in the art, any suitable type of outer shell such as, for example, the type of outer shell shown in the United States Letters Patent No. 2,616,146, issued November 4, 1952 to Wilbert W. Haase, may be used and that our invention is not limited to the particular form of outer shell H shown in the drawings, this shell being shown merely for purposes of illustration.

The vault-forming material may then be poured through the opening 171 in the top of the housing H, Figs. 1 and 3, into the space between the housing H and the core C and, after the material is suitably hardened, the outer shell H, the vault V and the core C, may be raised upwardly from the base B into position wherein the ears 75a—78a on the pawls 75—78 engage beneath the re-enforcing members 61 and 62 in position to effectively support the outer shell H, the vault V, the core C in such raised position. Such raising of the shell H, vault V, and core C, may be accomplished by any suitable means such as for example, a hoist, not shown, suitably engaged with the outer shell H such as, for example, by being connected to the trunnions 157 and 158 projecting outwardly from the opposite end walls of the housing H, Fig. 1.

After the shell H, the box V and the core C have been raised to this position, a suitable source of working fluid

such as, for example, an air compressor, may be connected to the coupling member 138 to thereby feed compressed air through the hoses 136 and 136a into the lower ends of the cylinders 128 and 128a and effect outward movement of the plungers 129 and 129a and the cylinders 128 and 128a relative to each other.

During this actuation of the lifting units L1 and L2, the core C, box V and housing H are supported in upwardly spaced relation to the base B by the pawls 75—78 which are engaged with braces 61 and 62 disposed on the portions of the side walls 53 and 54 which are embodied in the corner sections 109 and 111. The weight of the box V and the housing H is sufficient to maintain the braces 61 and 62 in such engagement with the pawls 75—78 so that the corner sections 109 and 111 of the core C are not raised by the actuation of the lifting units L1 and L2. Hence, such actuation of the lifting units L1 and L2 moves the cylinders 128 and 128a downwardly along the pistons 129 and 129a, and this is effective to move the corner sections 108 and 110 downwardly relative to the corner sections 109 and 111 and the top plate 58 into a position such as shown in Fig. 3. During this downward movement of the corner sections 108 and 110, the downward movement of the tracks 113—116 is effective to cam the slides 123 and 125 inwardly toward each other, and the slides 124 and 126 inwardly toward each other, to thereby maintain the corner sections 108—111 in abutting relation to each other. Thus it will be seen that the corner sections 108—111 are moved in a positive manner horizontally toward each other so that the core C is caused to shrink both laterally and longitudinally in a horizontal direction and the walls 51—54 are pulled inwardly out of engagement with the respective adjacent walls of the box V.

Thereafter, the box V may be lifted from the core C by lifting at the trunnions 157 and 158 on the outer shell H by suitable means such as a hoist, not shown, and the outer shell H with the box V disposed therein may be thus raised from the core C. During this lifting of the box V from the core C, the top plate 58 of the core C normally adheres to the adjacent wall of the box V and is raised therewith to the position wherein the slack in the chains 154 and 155 is taken up and the chains 154 and 155 tighten to thereby pull the top plate 58 from its engagement with the adjacent wall of the box V to thereby permit the top plate 58 to fall downwardly into position on the flange 56 on the upper edges of the walls 51—54 of the core C, the guide rods 151 and 152, through their engagement in the guide sleeves, 151a and 152a, guiding the top plate 58 in this downward movement to thereby insure proper positioning of the top plate 58 relative to the walls 51—54 and to the base B.

The outer shell H and the box V may then be raised completely off from the core C and the box V removed from the outer shell H by disassembling the walls of the shell H. The core C may then be quickly and easily returned to its normal vault forming position by applying air pressure through the coupling member 139 and thus raising the cylinders 128 and 128a and raising the corner sections 108 and 110 back into normal operating position relative to the corner sections 109 and 111 wherein the upper edge portions of the walls 51—54 are disposed in substantially the same horizontal plane. The handle 92 may then be manually pulled from outside the base B to thereby pull the pawls 75—78 inwardly out of engagement with the braces 61 and 62 and permit the core C to drop back down into normal operating position on the rails 22—25 of the base B. The outer shell H may then again be assembled on the base B around the core C and the form 20 is again operable to receive vault forming material for the purpose of forming another vault.

From the foregoing, it will be seen that we have afforded a novel form which is quickly and easily removed from a receptacle such as the box of a burial vault.

Also, it will be seen that we have provided a novel form embodying a core which is constructed and is operable in a novel and expeditious manner.

In addition, it will be seen that we have afforded a novel form which is particularly effective and efficient in operation and may be economically produced commercially.

Thus, while we have illustrated and described the preferred embodiment of our invention, it is to be understood that this is capable of variation and modification, and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims.

We claim:

1. A form for molding burial vaults, and the like, comprising a base, an outer shell mounted on said base, and a core mounted on said base inwardly of said outer shell in position to permit construction material to be disposed between said shell and said core, said core comprising a plurality of corner sections, each of said corner sections comprising portions of two adjoining substantially vertical side walls and being disposed in abutting relation to two of the other corner sections along lines disposed at an acute angle to the horizontal in said side walls, elongated track members mounted on certain of said corner sections in parallel relation to said lines, slide members mounted on the other of said corner sections and slidably mounted on said track members for reciprocation along the latter, and means for reciprocating said track members and said slide members relative to each other in such relation as to move adjacent corner sections relative to each other in opposite directions along said lines.

2. A molding form comprising a base, a substantially rectangular-shaped core comprising four upstanding wall sections disposed in end to end relation to each other, said wall sections being separated from each other along lines disposed at an acute angle to the horizontal, said wall sections having a raised position and lowered position relative to said base, means for moving said wall sections from the lowered to the raised position, means on said base for supporting two of said wall sections in said raised position, actuating means, said actuating means comprising cylinder means connected to the other two of said wall sections, piston means reciprocally mounted in said cylinder means, said piston means being connected to said first mentioned wall sections, and means for moving said cylinder means downwardly relative to said piston means when said first mentioned two wall sections are supported by said supporting means in said raised position to thereby move said other two wall sections downwardly along said lines relative to said first mentioned two wall sections to thereby shrink said core longitudinally and laterally, and means disposed outwardly of said core to form an outer shell therearound.

3. In a form for molding burial vaults, and the like, of the character including a base, and an outer shell mounted on said base, a core mounted on said base inwardly of said outer shell, said core comprising upstanding walls disposed to define the outer edges of a horizontal substantially rectangular-shaped area, a substantially flat rectangular-shaped cover member normally mounted on said walls, said walls being divided along four separation lines into four corner sections, said lines extending from the top to the bottom of said walls at an acute angle to the horizontal, alternate ones of said lines being disposed at substantially the same acute angle to the horizontal, two of said sections being spaced from each other by the other two of said corner sections, said other two sections being spaced from each other by said first mentioned two sections, each of said first mentioned two sections being defined by a respective pair of said lines, the two lines in each of said pairs diverging from each other in

the same general vertical direction as the two lines in the other of said pairs, four elongated tracks, each of said tracks being disposed adjacent to and in substantially parallel relation to a respective one of said lines, each of said tracks being attached to said corner section of said first two mentioned corner sections a lateral edge of which said respective line defines, slide members mounted on said tracks and attached to adjacent ones of said other two corner sections, and means connected between said tracks and said respective slide members thereon for reciprocating said tracks and slide members relative to each other and thereby reciprocate said first mentioned two corner sections and said other two corner sections relative to each other.

4. The combination as defined in claim 3 and in which said means for reciprocating said tracks and slide member comprises a pair of fluid actuated piston and cylinder assemblies.

5. A form for making burial vaults, and the like, comprising a base, an outer shell mounted on said base in upstanding position thereon, a core mounted inwardly of said outer shell and comprising a plurality of upstanding corner sections, and a top wall extending over said corner sections, said core having a raised position and a lowered position relative to said base, means connected to said corner sections for moving two of said sections downwardly relative to the remainder of said sections when said core is disposed in said raised position, guide means mounted on said base, means mounted on said top wall and engaged with said guide means for guiding said top wall relative to said two corner sections, and means for pulling said top wall toward said two corner sections.

6. A molding form comprising a base, a substantially rectangular-shaped core comprising four upstanding wall sections disposed in end to end relation to each other, said wall sections being separated from each other along lines disposed at an acute angle to the horizontal, said wall sections having a raised position and a lowered position relative to said base, means for moving said wall sections from the lowered to the raised position, means on said base for supporting two of said wall sections in said raised position, actuating means connected between said two wall sections and the other wall sections for moving the latter downwardly relative to said two wall sections when said two wall sections are supported by the supporting means in the raised position to thereby move said other wall sections downwardly along said lines relative to said first mentioned two wall sections to shrink said core longitudinally and laterally, and means disposed outwardly of said core to form an outer shell therearound.

7. The molding form as defined in claim 6 wherein said supporting means comprises a pair of posts pivotally connected to said base at their lower ends and movable toward and away from said two wall sections, means for simultaneously moving said posts toward and away from their respective wall sections, said two wall sections each having an inwardly projecting element thereon and each of said posts being provided with an ear for engaging under the respective projections on the two wall members to support the same in raised position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,024,646	Muckey	Apr. 30, 1912
1,134,543	McArthur	Apr. 6, 1915
1,164,106	Lerch	Dec. 14, 1915
1,292,203	Wolfe	Jan. 21, 1919
1,538,471	Copeman	May 19, 1925
2,442,516	Shriver	June 1, 1948
2,593,465	Tourneau	Apr. 22, 1952
2,733,495	Lucas	Feb. 7, 1956