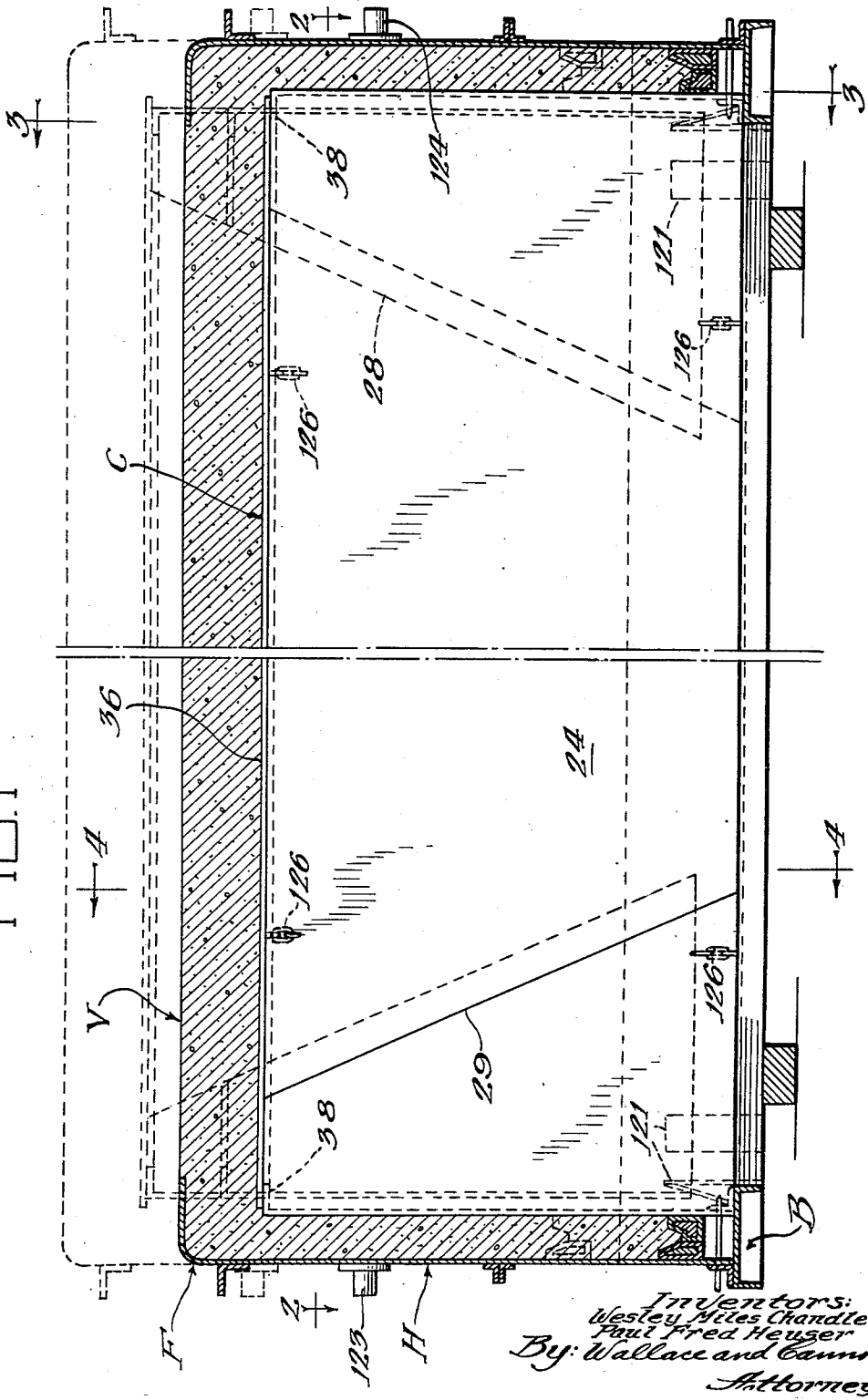
June 3, 1958 W. M. CHANDLER ET AL 2,836,875

CORE FORMS

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FIG. 1



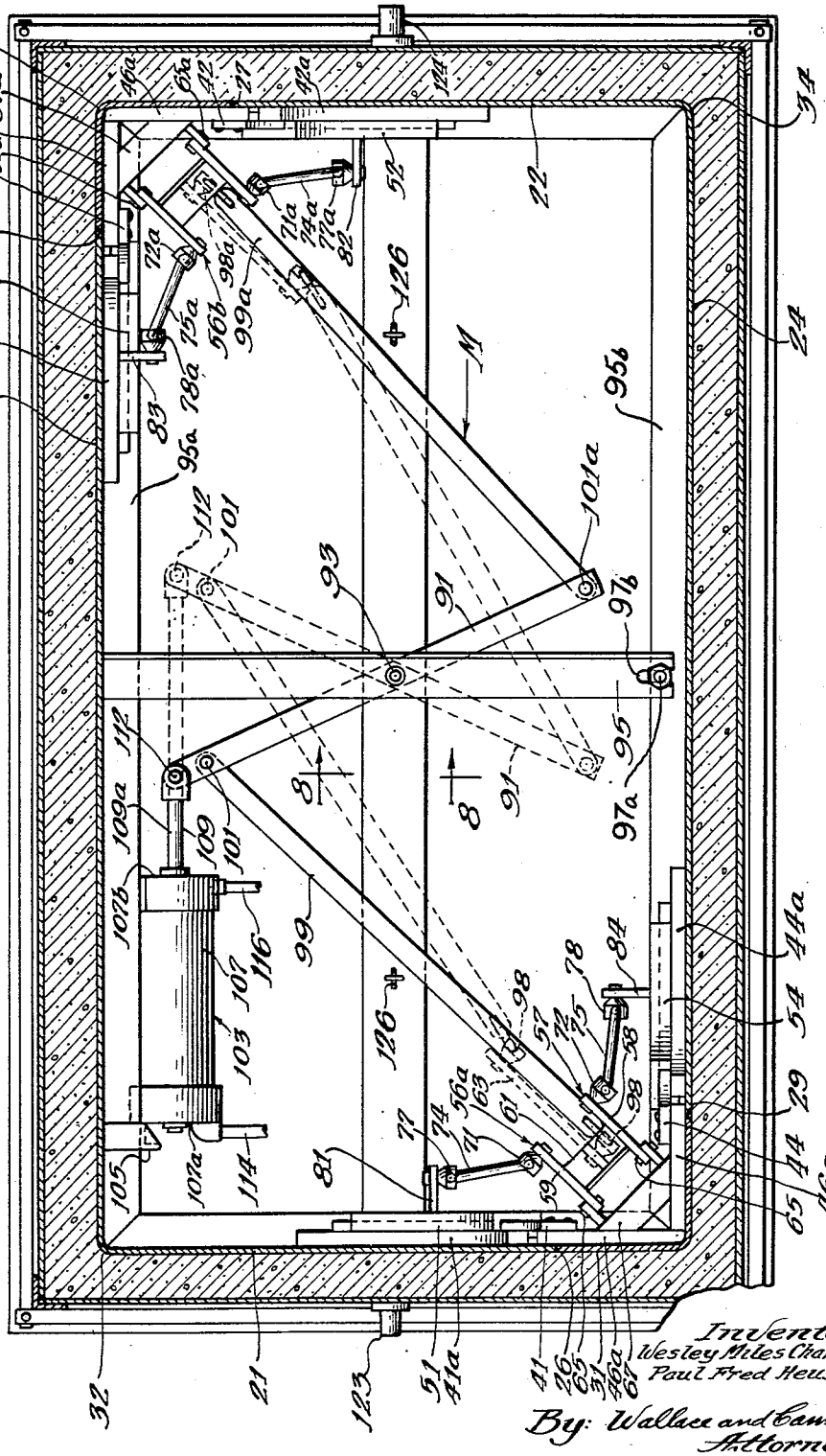
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CORE FORMS

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FIG. 2



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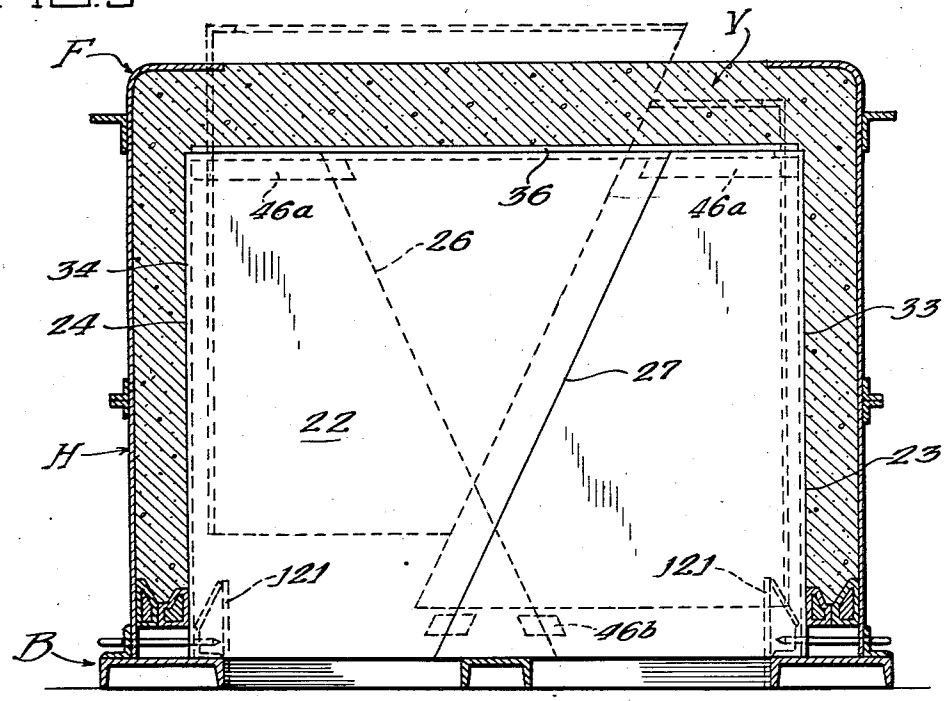
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CORE FORMS

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FIG.3



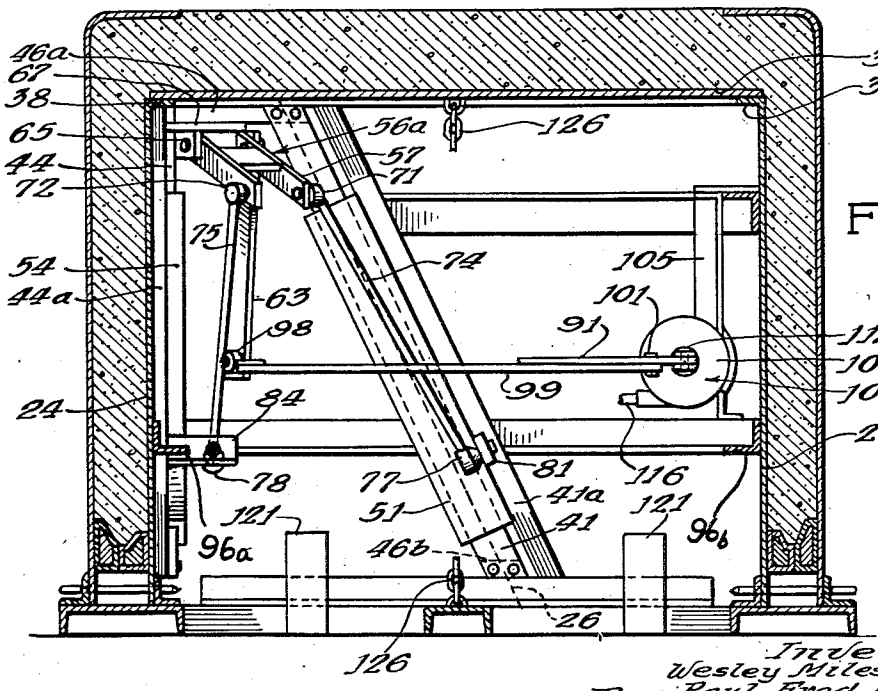


FIG.4

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FIG. 5

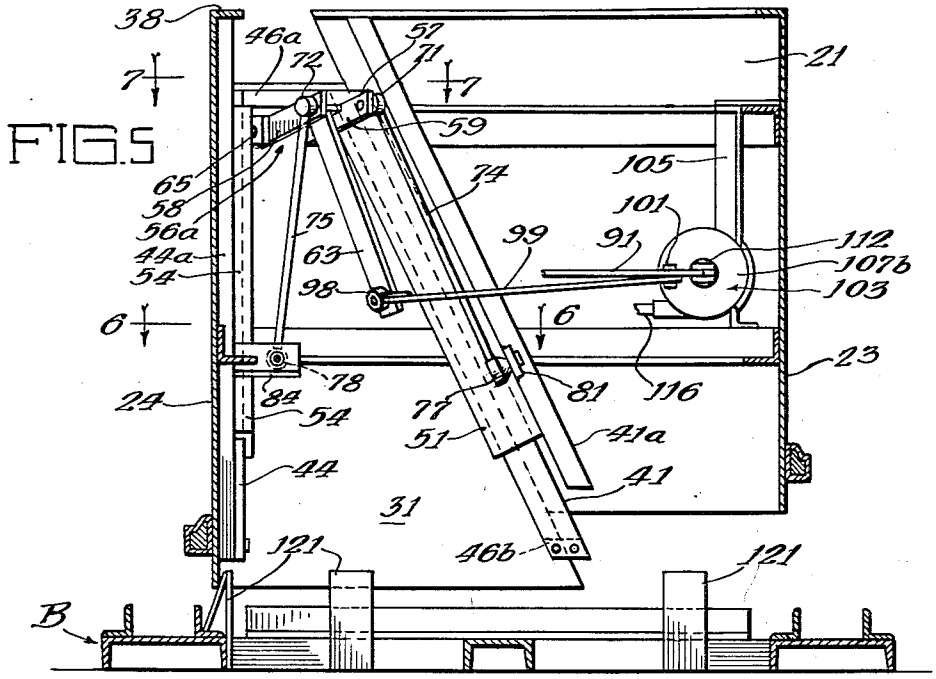


FIG. 6

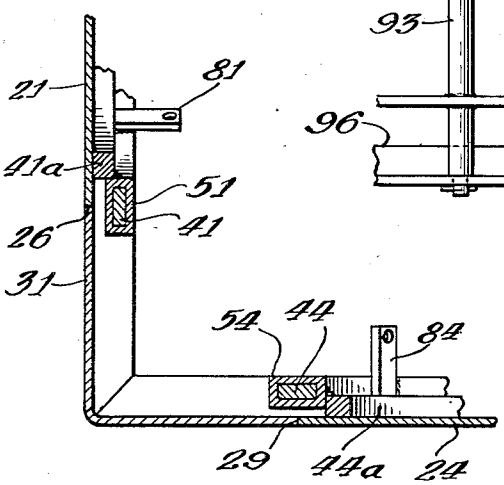


FIG. 8

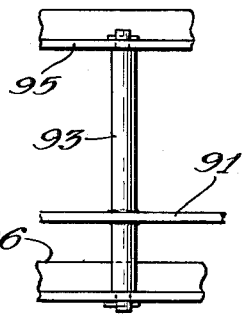
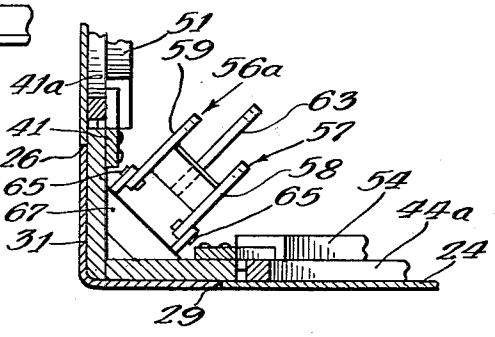


FIG. 7



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United States Patent Office 2,836,875 Patented June 3, 1958

2,836,875

CORE FORMS

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Application October 14, 1955, Serial No. 540,382

6 Claims. (Cl. 25—128)

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

The present invention constitutes improvements in cores of the general type disclosed in the application for Letters Patent Serial No. 434,252, now Patent No. 2,805,462, filed in the United States Patent Office on June 3, 1954, by Wesley M. Chandler, Paul F. Heuser and Kenneth C. Smith.

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.

It is an object of our invention to afford a core, of the aforementioned general type, embodying corner sections which may be moved relative to each other in a novel and expeditious manner.

A further object of our invention to insure substantially simultaneous, equal movement, of diagonally oppositely disposed corner sections during the collapsing and expansion of a core of the aforementioned type.

Another object is to enable oppositely disposed corner sections of a core of the aforementioned type to be positively moved in a novel manner.

Yet another object is to provide a novel core of the aforementioned type which is relatively simple and easy to operate.

A further object of our invention is to protect against the canting or binding of corner sections of a core of the aforementioned type during the collapsing and expansion thereof.

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 a preferred embodiment 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 invention 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 side elevational view of a core embodying the principles of our invention, and showing the core mounted in operative position in a form for molding burial vaults;

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

Fig. 3 is an end elevational view of the core shown in Fig. 3 looking in the direction of the arrows 3—3 in Fig. 1;

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

Fig. 5 is a view similar to Fig. 4 but showing parts disposed in different operative position;

Fig. 6 is a detail sectional view taken substantially along the line 6—6 in Fig. 5;

Fig. 7 is a detail sectional view taken substantially along the line 7—7 in Fig. 5; and

Fig. 8 is a detail elevational view of a portion of the mechanism shown in Fig. 2, looking in the direction of the arrows 8—8 in Fig. 2.

To illustrate the preferred embodiment of our invention, a core C, embodying the principles of our invention, is shown in the drawings mounted on the base B, within the outer housing or shell H, of a form F for making a burial vault box V.

Like the core in the aforementioned application for Letters Patent, Serial No. 434,252, the core C is substantially rectangular in shape and embodies two end walls 21 and 22, and two side walls 23 and 24, which are split along lines 26, 27, 28 and 29, respectively, Figs. 1, 2 and 3, to thus divide the core into four corner sections 31, 32, 33 and 34. A top wall 36 is loosely mounted on flanges 38 which project inwardly from the upper end portions of the walls 21—24, Figs. 1 and 4.

The lines 26—29 extend from the top to the bottom of the walls 21—24, respectively, and are disposed at acute angles to the horizontal with the lines 26 and 29 preferably disposed equal distances from, and at the same downwardly diverging angle to the junction of the end wall 21 and the side wall 24, and the lines 27 and 28 preferably disposed equal distances from, and at the same downwardly diverging angle to the junction of the end wall 22 and the side wall 23.

Four elongated track members 41, 42, 43 and 44 made of suitable material such as, for example, strap steel are mounted on the inner faces of the walls 21—24, respectively, in parallel overlying relation to the lines 26—29 respectively. Each of the tracks 41—44 is attached at its upper and lower ends to elongated spacing straps 46*a* and 46*b*, respectively, Figs. 2 and 4. The spacing straps 46*a* and 46*b* are attached to the upper and lower edge portions of the proper side walls 21—24 to thereby support the intermediate portion of each track 41—44 in spaced relation to the adjacent portions of the side walls 21—24. The tracks 41—44 are attached in this manner to the corner sections 31 and 33 with the track 41 being attached to the end wall 21 between the line 26 and the side wall 24; the track 42 being attached to the end wall 22 between the line 27 and the side wall 23; the track 43 being attached to the side wall 23 between the line 28 and the end wall 22; and the track 44 being attached to the side wall 24 between the line 29 and the end wall 21.

Four elongated slides or carriages 51, 52, 53 and 54 are slidably mounted on the tracks 41—44, respectively, Figs. 2 and 4. Each of the slides 51—54 has a substantially rectangular shaped opening extending longitudinally therethrough, Fig. 6, and the respective track 41—44 is disposed therein in snugly fitting but freely slidable relation thereto.

Four elongated mounting strips 41*a*, 42*a*, 43*a* and 44*a* are disposed adjacent to the slides 51—54, respectively, and are secured thereto by suitable means such as, for example, welding, Figs. 2 and 4. The mounting strips 41*a*—44*a* are secured to the walls 21—24 respectively, adjacent to the lines 26—29, respectively, but preferably spaced from the latter sufficiently that the slides 51—54 and the tracks 41—44 may be disposed in such position that the longitudinal center lines thereof are disposed in overlying parallel relation to the lines 26—29.

The mounting strips 41*a*—44*a* are attached to the

corner sections **32** and **34**, with the mounting strip **41***a* being attached to the end wall **21** between the line **26** and the side wall **23**; the mounting strip **42***a* being attached to the end wall **22** between the line **27** and the side wall **24**; the mounting strip **43***a* being attached to the side wall **23** between the line **28** and the end wall **21**; and the mounting strip **44***a* being attached to the side wall **24** between the line **29** and the end wall **22**. The upper and lower ends of the mounting strips **41***a*—**44***a* terminate substantially flush with the upper and lower edges of the respective walls **21**—**24** to which they are attached, and the slides **51**—**54** are attached to the longitudinal center portions of the mounting strips **41***a*—**44***a* in spaced relation to the outer ends of the latter.

A lifting mechanism M is mounted in the core C for effecting upward and downward movement of the corner sections **32** and **34** relative to the corner sections **31** and **33**. The lifting mechtanism M includes two substantially T-shaped levers **56***a* and **56***b* mounted in the corner sections **31** and **32**, respectively, Figs. 2 and 4. The levers **56***a* and **56***b* are identical in construction and each embodies a substantially H-shaped head **57** having two substantially parallel sides **58** and **59** interconnected by a centrally located cross member **61**. The elongated shank or body member **63** of the respective levers **56***a* and **56***b* projects generally downwardly from the respective cross member **61**.

The head **57** of the lever **56***a* is pivotally connected at one end of the corner section **31** by bolts **65** extending through the side members **58** and **59** into a bracket **67**, mounted on the inner face of the upper end portion of the corner section **31** by suitable means such as welding. The other end portions of the side members **59** and **58** and the head **57** of the lever **56***a* are connected by a ball and socket joint **71** and **72**, respectively, to the upper end portion of respective rods **74** and **75**. The lower end portions of the rods **74** and **75** are connected by ball and socket joints **77** and **78** to brackets **81** and **84** which are attached to and project inwardly from the slides **51** and **54**, respectively, Figs. 2 and 4.

The other lever **56***b* is similarly attached by bolts **65***a* to a bracket **67***a* mounted in the corner section **33**, and is similarly attached by rods **74***a* and **75***a*, and ball and socket joints **71***a*, **72**, **77***a* and **78***a*, to brackets **82** and **83** attached to, and projecting inwardly from, the slides **52** and **53** respectively, Fig. 2.

An elongated lever **91**, Figs. 2 and 8, is mounted on and attached to a rod **93** which extends vertically through the central portion thereof. The rod **93** is mounted between and journalled in two horizontally disposed brace members **95** and **96**, Figs. 2 and 8, which extend between, and are mounted on, the upper face of two elongated brace members **95***a* and **95***b*, and **96***a* and **96***b*, respectively, attached to, and extending longitudinally of, the inner faces of the side walls **23** and **24**. The brace members **95** and **96** are attached at one end to the brace members **95***a* and **96** *a*, respectively, by suitable means such as welding. The other ends of the brace members **95** and **96** terminate in spaced relation to the side wall **24**, and are attached to the brace members **95***b* and **96***b* by bolts **97***a* mounted in slots **97***b* with a sliding fit so that the walls **23** and **24** are free to move inwardly and outwardly relative to each other. The brace members **95** and **96** are disposed perpendicular to the side walls **23** and **24**, intermediate the ends thereof, and are disposed in parallel vertical spaced relation to each other to thereby support the rod **93** in substantially vertically extending position.

The lower end portion of the shank **63** of the lever **56***a* is connected by a ball and socket joint **98**, Figs. 2 and 4, to one end portion of a link **99**. The other end portion of the link **99** is pivotally connected by suitable means such as a pin **101** to one end portion of the lever **91**.

Similarly, the lower end portion of the shank **63** of the lever **56***b* is connected by a ball and socket joint **98***a*, Fig. 2, to one end portion of a link **99***a*, and the other end portion of the link **99***a* is connected by a pin **101***a* to the end portion of the lever **91** opposite that to which the link **99** is connected.

A fluid motor **103**, operable by suitable working fluid such as, for example, compressed air, is mounted on the side wall **23** by a bracket **105**. The motor **103** embodies an elongated cylinder **107** disposed in horizontally extending position in parallel relation to the side wall **23**. An elongated piston **109** is reciprocably mounted in the cylinder **107**, and has an outer end portion **109***a* projecting outwardly from the cylinder **107** and pivotally connected to the lever **91** by a pin **112**, outwardly of the pin **101**. The fit between the pin **112** and the piston **109** and the lever **91** is sufficiently loose that, when the piston **109** moves from fully retracted position shown in solid lines in Fig. 2, to the fully extended position shown in broken lines in Fig. 2, it is effective to rotate the lever **91** from the position in which it is shown in broken lines in Fig. 2 without binding occurring in the connection of the piston **109** and the lever **91**.

Movement of the piston **109** outwardly from the cylinder **107** of the fluid motor **103** may be effected by feeding compressed air from a suitable source, not shown, through a line **114** into the tail end **107***a* of the cylinder **107**. Movement of the piston **109** from the fully extended position shown in broken lines in Fig. 2 to the fully retracted position shown in solid lines therein, may be effected by similarly feeding compressed air through a line **116** into the head end **107***b* of the cylinder **107**.

When the walls **21**—**24** of the core C are disposed in normal position as shown in solid lines in Figs. 1, 3 and 4, the heads **57** of the levers **56***a* and **56***b* are disposed in downwardly and inwardly sloping relation to the brackets **67** and **67***a*, and the shanks **63** project downwardly and outwardly from the heads **57** as shown in Fig. 4.

When the piston **109** of the motor **103** is disposed in fully retracted position as shown in solid lines in Fig. 2, the lever **91**, and the links **99** and **99***a*, are disposed in the positions shown in solid lines in Fig. 2, and in which position they permit the shank **63** of the T-shaped levers **56***a* and **56***b* to be disposed in the aforementioned normal position wherein they project downwardly and outwardly from the heads **57** of the levers **56***a* and **56***b*.

Upon actuation of the motor **103** to thereby extend the piston **109** from the retracted position shown in solid lines in Fig. 2 to the fully extended position shown in broken lines therein, the lever **91** is pivoted thereby around the rod **93** from the position shown in solid lines in Fig. 2 to the position shown in broken lines therein. This movement of the lever **91** is effective to move the links **99** and **99***a* from the position shown in solid lines in Fig. 2 to the position shown in broken lines therein and thereby pull the lower end portions of the shanks **63** of the levers **56***a* and **56***b* inwardly toward the center of the core from the positions shown in Fig. 4, to the position shown in Fig. 5 and in broken lines in Fig. 2. Such movement of the shanks **63** causes the heads **57** of the levers **56***a* and **56***b* to rotate upwardly around the pins **65** and thereby causes the rods **74**, **75**, **74***a* and **75***a* to pull the slides **51**, **54**, **52** and **53** upwardly along the tracks **41**, **44**, **42** and **43**, respectively, to thereby raise the corner sections **32** and **34** relative to the corner sections **31** and **33** from the position shown in solid lines in Figs. 1, 3 and 4 into the position shown in Fig. 5 and in broken lines in Figs. 1 and 3.

When it is desired to again lower the corner sections **32** and **34** relative to the corner sections **31** and **33**, compressed air may be fed into the line **116** to thereby move the piston **109** from the fully extended position to the fully retracted position shown in Fig. 2 and thereby move the lever **91** and the links **99** and **99***a* from the

position shown in broken lines in Fig. 2 to the position shown in solid lines therein. This movement of the lever **91** and the links **99** and **99***a* is effective to return the levers **56***a* and **56***b* to normal position shown in solid lines in Fig. 2 and thereby move the slides **51**, **54**, **52** and **53** downwardly relative to the tracks **41**, **44**, **42** and **43**, respectively, and thus move the corner sections **32** and **34** down relative to the corner sections **31** and **33**, back into normal position relative to the latter.

It will be understood by those skilled in the art that when we state that the corner sections 32 and 34 are moved upwardly or downwardly relative to the corner sections 32 and 33, this is merely relative movement, and under conditions wherein the corner sections **32** and **34** are prevented from moving upwardly or downwardly, the corner sections **31** and **33** are actually moved downwardly or upwardly, and under conditions wherein all of the corner sections **31**—**34** are free to move, the corner sections **32** and **34** will actually move upwardly or downwardly and the corner sections **31** and **33** will actually move downwardly or upwardly, simultaneously.

In this novel core, it will be seen that the upward relative movement of the corner sections **32** and **34** relative to the corner sections **31** and **33** is effected in a practical manner to insure equal movement of the diagonally opposite corner sections to thereby protect against binding thereof.

From the foregoing, it will be seen that in a typical operation of a form embodying my novel core, 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 core C is disposed outwardly of guide members **121**, Figs. 3 and 4, with the top plate **36** disposed on the flange **38**. A suitable outer shell or housing, such as the housing H, may then be mounted in operative position outwardly of the core C and 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. After the vault-forming material has been poured into the space between the housing H and the core C, the outer shell H, the vault V and the core C, may be raised upwardly from the base B. Such raising of the shell H, vault V, and core C, may be accomplished by suitable means such as, for example, a hoist, not shown, suitably engaged with the shell H, such as for example, by being connected to trunnions **123** and **124** projecting outwardly from the opposite end walls of the housing H.

After the shell H, the box V and the core C have been raised to this position, compressed air may be fed through the line **114** into the cylinder **107** to thereby effect outward movement of the plunger **109**. This movement of the piston **109** is effective to pivot the heads **57** of the levers **56***a* and **56***b* upwardly and thereby move the corner sections **32** and **34** of the core C upwardly relative to the corner sections **31** and **33**, or, in other words, to move the corner sections **31** and **33** downwardly relative to the corner sections **32** and **34**, as previously discussed. During this movement of the corner sections **31** and **33**, relative to the corner sections **32** and **34**, the movement of the tracks **41**—**44** relative to the slides **51**—**54** is effective to cam the slides **51** and **54** inwardly toward each other, and the slides **52** and **53** inwardly toward each other, to thereby maintain the corner sections **31**—**34** in abutting relation to each other. Hence, the corner sections **31**—**34** 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 **21**—**24** are pulled inwardly out of engagement with the respective adjacent walls of the box V. This shrinkage of the core C is effective to move the lower edge portions of the corner sections **31** and **33** into engagement with the upper end portions of the guide members **121** disposed adjacent thereto to thereby support the core C in raised position.

Thereafter, the box V may be lifted from the core C by lifting at the trunnions **123** and **124** on the outer shell H. During this lifting of the box V from the core C the top plate **36** may be pulled from engagement with the box V by suitable means such as chains **126** connected to the plate 36 and the base B, Figs. 2 and 5, and thereby permit the top plate **36** to fall downwardly on to the flange **38**.

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 line **116** to the cylinder **107** to thereby cause the piston **109** to move back into fully retracted position and thus pivot the levers **56***a* and **56***b* back into normal position. As the levers **56***a* and **56***b* move back into normal position, the corner sections **32** and **34** of the core C move downwardly relative to the corner sections **31** and **33** to thereby cause the walls **21**—**24** to expand outwardly relative to each other, to thus enable the core C to slide back down the guide members **121** on which it rests into the normal position shown in Fig. 1. 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 core for burial vault forms and the like wherein the parts thereof are constituted and arranged, and are operable in a novel and expeditious manner.

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 to such changes and alterations as fall within the purview of the following claims.

We claim:

1. A core for use in forms for molding burial vaults, and the like, comprising two pairs of oppositely disposed corner sections disposed in abutting relationship with respect to each other, said pairs of corner sections being movable vertically and horizontally relative to each other, means pivotally mounted in said corner sections of one of said pairs for swinging movement thereon through similar predetermined arcs, said means in each of said corner sections in said one pair being connected to each of said corner sections in the other of said pairs and being operable upon oscillation of said means through said arc to move said corner sections in said other pair vertically and horizontally relative to said corner sections in said one pair to expand and contract the core, and a driving member connected to said first mentioned means and operable to simultaneously swing said means in both said corner sections of said one pair through said arcs.

2. A core for use in forms for molding burial vaults, and the like, comprising two pairs of oppositely disposed corner sections slidably mounted in mutually abutting relationship relative to each other for sliding movement vertically and horizontally relative to each other, two levers, each of said levers being rotatably mounted in a respective one of said corner sections in one of said pairs for rotation through a predetermined path of travel, means connecing said levers to said corner sections in the other of said pairs in position to slide said last mentioned corner sections vertically and horizontally relative to said corner sections in said one pair to expand and contract the core upon oscillation of said levers through said path of travel, and means for simultaneously oscillating said levers through said path of travel, said last named means comprising a lever pivotably mounted between said corner sections and connected to said first mentioned levers, and means connected to said second mentioned lever for oscillating the latter.

3. A core for use in forms for burial vaults, and the like, comprising two pairs of oppositely disposed corners, each of said corners in one of said pairs being disposed in abutting relation to each of said corner sections in the other of said pairs along a downwardly and outwardly sloping line, two elongated levers, each of said levers being pivotally mounted at one end on one of said corner sections in said one pair, each of said levers having another end portion movable through a predetermined arc around said one end portion thereof, elongated rods connected at one end to said levers and at the other end to said corner sections in said other pair in position to move said corner sections in said other pair vertically and horizontally along said lines relative to said corner sections in said one pair to expand and contract the core upon oscillation of said levers through said arcs, and means for simultaneously oscillating said levers through said arcs, said means comprising driving means including an elongated lever rotatably mounted between said corner sections and having two end portions connected to said first mentioned levers in position to oscillate the latter.

4. A core for a molding form comprising two pairs of corners, each of said pairs of corners being slidably mounted in mutually abutting relationship relative to the other of said pairs for sliding movement vertically and horizontally relative thereto, levers pivotally mounted in said corners in one of said pairs and connected to said corners in the other of said pairs in position to slide said pairs of corners vertically and horizontally relative to each other to expand and contract the core upon predetermined movement of said levers, and means for moving said levers through said predetermined movement, said means comprising an elongated lever centrally pivoted between said corners, means connecting the end portions of said elongated lever to said first mentioned levers in such position as to be effective to move said first mentioned levers through said predetermined movement upon oscillation of said elongated lever, and drive means connected to one end portion of said elongated lever for oscillating the latter.

5. In a core having upstanding walls divided from top to bottom along four separation lines disposed at an acute angle to the horizontal into four corner sections, two of said sections being spaced from each other by the other two of said corner sections, said other two corner sections being spaced from each other by said first mentioned two corner sections, four elongated tracks attached to said first mentioned corner sections, each of said track being disposed adjacent to, and in substantially parallel relation to, a respective one of said lines, and four slides attached to said other corner sections, each of said slides being slidably mounted on a respective one of said tracks for reciprocatory movement therealong: two levers, each of said levers having two legs, one of said legs of each of said levers being connected to a respective one of said slides, said levers being pivotally mounted on respective ones of said first mentioned two corner sections in position to effect reciprocation of said slides attached thereto longitudinally of said respective tracks upon oscillation of said one leg of each of said levers through a predetermined arc, an elongated lever pivotally mounted between said corner sections for predetermined horizontal pivotal movement, links connecting said elongated lever to the other legs of said first mentioned levers in position to oscillate each of said first mentioned legs through said predetermined arc upon movement of said elongated lever through said predetermined horizontal movement, and reciprocatory means mounted on one of said walls and connected to said elongated lever for moving the latter through said horizontal movement.

6. A core for use in forms for molding burial vaults, and the like, comprising two pairs of oppositely disposed corner sections, said pairs of corner sections being movable upwardly and downwardly relative to each other, an elongated lever, means attached to the central portion of said elongated lever pivotally mounting said lever between said corner sections for rotation through a predetermined movement in a substantially horizontal plane, two substantially T-shaped levers, each of said T-shaped levers having an elongated head and an elongated shank and being pivotally mounted at one end portion of said head to a respective one of said corner sections in one of said pairs, the other end portion of each of said heads having a normal position wherein it projects downwardly and inwardly from said respective corner section, and an actuated position disposed above said normal position, rods connecting said corner sections of the other of said pairs to said other end portions of said heads, two elongated links, each of said links having one end portion attached to a respective end portion of said elongated lever, and another end portion attached to said shank of a respective one of said T-shaped levers, in position to oscillate said T-shaped lever, and thereby swing said other end portion thereof between said normal position and said actuated position, and thereby move said corner sections in said other pair upwardly and downwardly relative to said corner sections in said one pair, upon rotation of said elongated lever through said predetermined movement, and means including a piston slidably mounted on one of said corner sections and connected to one end portion of said elongated lever for rotating the latter through said predetermined movement.

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