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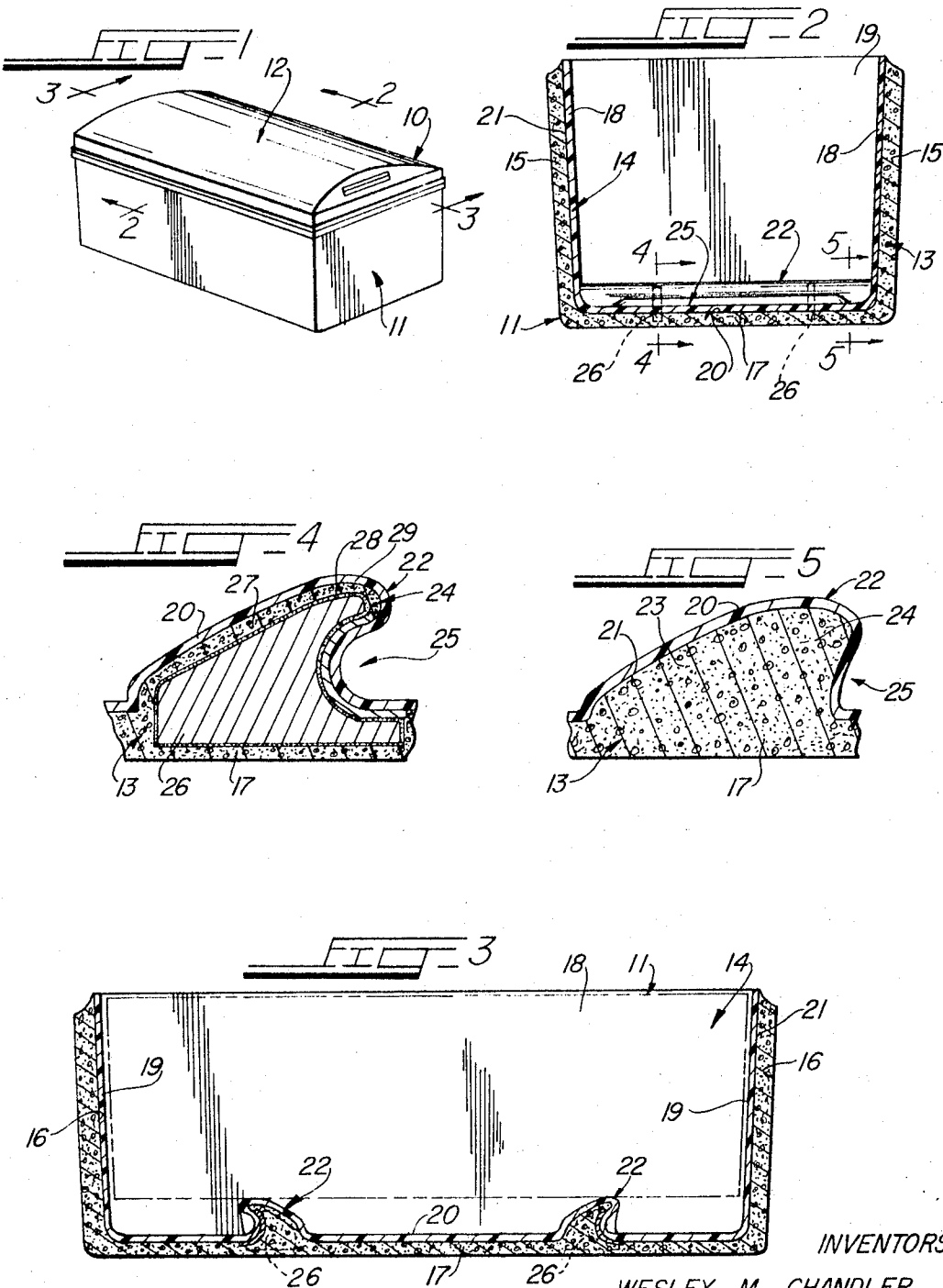
W. M. CHANDLER ETAL

3,464,171

BURIAL VAULTS

Filed Nov. 20, 1967

2 Sheets-Sheet 1



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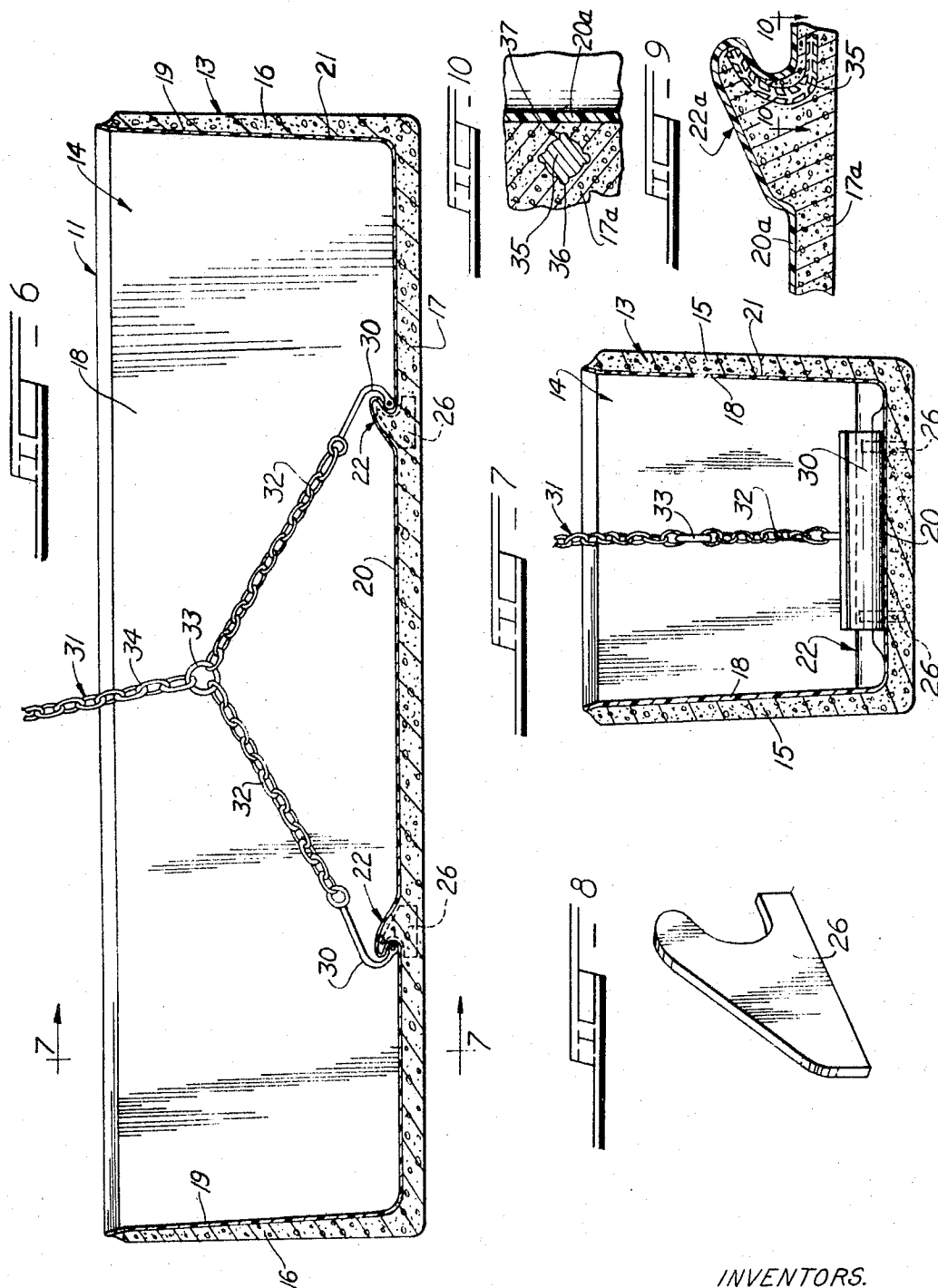
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BURIAL VAULTS

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ABSTRACT OF THE DISCLOSURE

A burial vault is provided embodying a box-like base and cover unit which may be formed entirely of concrete or partly of concrete with one or more plastic resinous liners integrally and adhesively bonded thereto. The bottom wall of the box-like base has formed integrally therein a pair of horizontally spaced transversely extending members which serve as casket rests, and as vault lifting members to assist in raising and lowering the box-like base of the vault, and also as primary reinforcing members for reinforcing the side walls of the base of the vault, and has an upwardly and longitudinally out-vault need such reinforcement. Each of the combination casket rest, vault lifting members, and side wall reinforcing members extends between the side walls of the base of the vault inwardly of the end walls thereof, and projects above the bottom wall or floor of the box-like base of the vault, and has an upwardly and longitudinally outwardly extending shoulder formed therein and below which an inwardly extending recess is formed in each side wall reinforcing shoulder for the reception of a vault lifting device attached to flexible hoist cables, or like vault lifting means, so that the box-like base of the vault may be raised and lowered by inserting the lifting device in the aforesaid recesses and then operating the vault lifting means. Auxiliary reinforcing members are embedded in the transversely extending casket rest, vault lifting and primary reinforcing members to strengthen the latter and enable them to resist the strains applied thereto as an incident to the raising and lowering of the base of the vault.

Objects

An object of the invention is to provide a new and improved burial vault embodying a box-like base and a cover unit and in which the box-like base portion of the vault has provided therein a pair of horizontally spaced transversely extending combination casket rests, vault lifting members, and side wall reinforcing members.

Another object of the invention is to provide a new and improved burial vault embodying a box-like base and cover unit and in which the bottom wall of the box-like base has provided therein a pair of transversely extending combination casket rest, lifting members, and side wall reinforcing members, one of which is arranged inwardly of and adjacent to each end wall of the box-like base of the vault, and each of which has an upwardly and auxiliary or longitudinally outwardly extending shoulder having an inwardly extending recess formed thereunder for the reception of a vault lifting device attached to flexible lifting cables, or like vault lifting means, so that the box-like base of the vault may be raised and lowered by inserting the vault lifting device in the recesses of the aforesaid combination casket rests, lifting members and side wall reinforcing members and then operating the vault lifting means.

Another object of the invention is to provide in the new burial vault the aforesaid combination casket rests, vault lifting member and side wall reinforcing members in which the recesses for the vault lifting devices extend

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only partially across the length of the said members, between the side walls of the box-like base of the vault, so that each of the said members has a substantial body of material in the outer end portion thereof to serve as reinforcement for the adjacent side walls of the box-like base of the vault in the areas of the side walls of the base where such reinforcement is not needed.

Another object of the invention is to provide in the combination casket rest, lifting and reinforcing members which are embodied in the base of the new burial vault novel auxiliary reinforcing members which strengthen the combination casket rest, vault lifting and primary reinforcing members and enable them better to withstand the strains applied thereto as an incident to the operation of raising and lowering the base of the new vault.

Other and further objects will appear hereinafter.

Description

In the drawings:

FIG. 1 is a perspective view of a preferred embodiment of a burial vault embodying the present invention;

FIG. 2 is an enlarged transverse sectional view, on line 2—2 in FIG. 1, of the box-like base of the new vault showing one of the new combination casket rest, vault lifting members and side wall reinforcing members therein;

FIG. 3 is an enlarged longitudinal vertical sectional view, on line 3—3 in FIG. 1, with the cover unit of the vault removed;

FIG. 4 is a transverse vertical sectional view, on line 4—4 in FIG. 2, showing the form and shape of one of the new combination casket rest, vault lifting members and side wall reinforcing members and showing one form of one of the auxiliary reinforcing members embedded therein;

FIG. 5 is a transverse vertical sectional view, on line 5—5 in FIG. 2, showing the shape and construction of the outer end portion of one of the new combination casket rest, vault lifting members and side wall reinforcing members;

FIG. 6 is a central vertical sectional view of the base of the vault illustrating the manner in which a typical vault lifting device is attached to the combination casket rest, vault lifting and reinforcing members for raising and lowering the base of the vault;

FIG. 7 is a transverse vertical sectional view on line 7—7 in FIG. 6;

FIG. 8 is a perspective view of the form of the auxiliary reinforcing members shown in FIGS. 1, 2, 3, 4, 6 and 7;

FIG. 9 is a sectional view, similar to FIG. 4, but showing another form of the auxiliary reinforcing members which may be employed in the practice of the present invention; and

FIG. 10 is an enlarged sectional detail view on line 10—10 in FIG. 9.

A preferred embodiment of the new burial vault is illustrated in FIGS. 1 to 7, inclusive, of the drawings, wherein it is generally indicated at 10, and comprises a box-like base 11 and cover unit 12. For the purpose of illustration, and as shown in FIGS. 2 and 3, the base 11 of the new burial vault 10 is shown as comprising an outer concrete wall component 13, and an inner synthetic plastic resinous liner component 14 which is adhesively and integrally bonded, in situ, to the inner surface of the outer concrete wall component 13 by means of an epoxy resin or like strong bonding adhesive coating 21, and the cover unit 12 may embody a construction similar to that of the base 11.

As shown in the drawing, the outer concrete wall component 13 of the base 11 includes side walls 15, end walls 16, and a bottom wall 17, and the inner molded plastic

resinous liner component 14 includes side walls 18, end walls 19 and a bottom wall portion 20.

In the practice of the present invention a pair of transversely extending combination casket rest, vault lifting and side wall reinforcing members 22 are provided in the bottom wall 17-20 of the box-like base 11 of the vault 10, these members 22 being referred to hereinafter as the "transversely extending members." Each of the transversely extending members 22 extends transversely across the bottom wall 17-20 of the base 11 between the side walls 18-15, and inwardly of the end walls 19-16, and each of the transversely extending members 22 projects above the upper surface of the bottom wall 17-20 of the base members 22, as best shown in FIG. 4, and includes an upwardly extending body 23 having a shoulder portion 24 thereon which extends longitudinally outwardly lengthwise of the bottom wall 17-20 of the base 11 of the vault toward the adjacent end wall 16-19 thereof. Each of these shoulder portions 24 has an inwardly extending concave recess 25 provided therein below the shoulder portion 24; these recesses 25 being open at their outer ends, that is, the ends facing the end walls 16-19 of the base 11, and being closed at their inner ends.

Each of the inwardly extending recesses 25 extends generally parallel to one of the shoulder portions 23 but the recesses 25 taper outwardly or longitudinally of the base 11 near the ends of the transversely extending members 22 so that the outer end portion of each of the transversely extending members 22, and the shoulder 23 embodied therein, is substantially larger in vertical cross section than is the main body portion of each of the primary reinforcing member 22 through which the major part of the recess 25 extends, as may be seen by comparing FIGS. 4 and 5. This construction, coupled with the body of each of the transversely extending members 22, provides additional reinforcement for the side walls 15-18 of the base 11 of the vault 10 at those points where the side walls 15-18 of the base 11 are weakest and most in need of such reinforcing means.

It will be noted (FIGS. 4, 5, 6 and 7) that each of the transversely extending members 22 is formed, in part, in the concrete wall component 17 of the bottom wall 17-20 of the base 11 and, in part, in the molded plastic resinous inner liner component 20 of the bottom wall 17-20 of the base 11. Thus, the transversely extending members 22 are integral parts of the bottom wall 17-20 of the base 11 and extend between and are integrally joined at their outer end portions to the side walls 18-15 of the base 11.

However, in the practice of the present invention, the molded plastic resinous component 20 of the base 11 is first molded and then coated with a suitable strong bonding adhesive coating 21, such as an epoxy resin or like strong bonding adhesive, whereupon the concrete component 17 of the bottom wall 17-20 is formed by pouring the concrete over the adhesively coated molded plastic resinous component 20 and allowing the concrete to set, whereupon the concrete component 17 becomes adhesively and integrally bonded, in situ, to the molded plastic resinous component 20 of the base 11.

It will also be noted, by reference to FIGS. 2, 3, 4, 6 and 7 of the drawings, that auxiliary reinforcing members 26 are embedded at spaced intervals in each of the transversely extending members 22 and that the auxiliary reinforcing members 26 are shaped to conform generally to the cross sectional contour of the transversely extending members 22. Thus, as shown in FIGS. 3, 4, 7 and 8, each of the auxiliary reinforcing members 26 is embedded in the bottom concrete component 17 of the bottom wall 17-20 of the base 11, and is encased by an upward extension 27 of the bottom concrete wall portion 17 of the base 11 to which each of the auxiliary reinforcing members 26 is adhesively and integrally bonded, in situ, by means of a strong bonding adhesive, such as an epoxy resin coating 28, or the like. Similarly, the bottom wall

portion 20 of the molded plastic resinous inner liner component 14 has an upward extension 29 which encases the upward extension 27 of the concrete wall portion 17 of the bottom wall 17-20 to which it is adhesively bonded, as pointed out above.

The auxiliary reinforcing members 26 may be made of any suitable material such, for example, as die cut steel plates 26, of suitable thickness, shaped to the desired form, as shown in FIG. 8, or of notched deformed steel reinforcing bar stock members 35, as shown in FIGS. 9 and 10.

When the auxiliary reinforcing members are in the form of the die cut steel plates 26 (FIG. 8), a coating of strong bonding adhesive, such as an epoxy resin coating 28, is applied to the steel plate reinforcing members 26 to bond them to the concrete wall component 17 of the bottom wall 17-20 of the base 11. However, when the auxiliary reinforcing members are in the form of deformed steel reinforcing bar stock members 35 (FIGS. 9 and 10), the use of such an adhesive bonding coating 28 is unnecessary since in this instance the concrete flows into and around ribs or bosses 36 which are formed in the auxiliary steel reinforcing bar stock members 35 and into grooves or recesses 37 which are formed between the ribs or bosses 36, so that the auxiliary reinforcing members 35 are firmly embedded in the concrete wall component 17 of the bottom wall 17-20 of the base 11 and the pull-out strength of the auxiliary reinforcing members 36 is thus enhanced and is such that the use of a bonding adhesive thereon is unnecessary.

Other parts in the modification shown in FIG. 9 which are similar to, or correspond to, the form of the invention illustrated in FIG. 4, have been given the same reference numerals followed by the additional and distinguishing reference character *a*.

In the use of the new burial vault 10 each of the transversely extending members 22 provides a casket rest on which the casket may be laid in the base of the vault at the time of interment.

However, in handling the box-like base 11 of the new vault 10, that is, in transporting it from a burial vault plant to a storage warehouse, or the cemetery, and lowering it into the grave opening, the operation of handling the base 11 of the vault 10 is facilitated by inserting suitable vault lifting members, such as lifting tongs 30, or the like, under the shoulders 24 and within the recesses 25. The lifting tongs 30 are shown as being a part of a vault lifting device 31, which includes a pair of chains 32 which are interconnected as at 33, to a main hoisting chain 34. This arrangement is such that when the vault lifting device 31 is operated the lifting tongs 30 enable the box-like base 11 of the vault 10 to be readily raised and lowered for movement in the vault plant, and for movement into storage and for transportation to the cemetery and for interment in the grave opening.

As is well known, concrete requires a period of time, such as from 14 to 28 days to cure, depending on the composition of the concrete mix, and other factors. However, in the manufacture and handling of burial vaults, such as the new vault 10 and which embodies a concrete component 13, it is frequently desirable to move the vault into storage within a matter of perhaps 16-24 hours after the concrete has been placed and at this time the transversely extending members 22 may not have sufficient strength to enable the base 11 of the vault to be lifted thereby and moved into storage, in the manner described above, without the use of the auxiliary reinforcing members 26 or 35. However, it has been found that when the auxiliary reinforcing members 26 or 35 are employed, as shown and described, the base 11 of the vault 10 may be easily raised and moved into storage within a matter of 16-24 hours after the concrete has been placed without rupturing or otherwise damaging the transversely extending members 22 or the bottom wall 17-20 of the base 11.

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It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawings, that the present invention provides a new and improved burial vault having the desirable advantages and characteristics and accomplishing its intended objects including those hereinafter pointed out and others which are inherent in the invention.

We claim:

1. A burial vault comprising
 - (a) a box-like base;
 - (b) the said box-like base including
 - (1) side walls;
 - (2) end walls; and
 - (3) a bottom wall extending between the said side walls and the said end walls;
 - (c) transversely extending members each including a body formed in the said bottom wall of the said base and extending transversely across the said bottom wall of the said base above the upper surface of the said bottom wall and between the said side walls and inwardly of the said end walls of the said base;
 - (d) each of the said transversely extending members including
 - (1) an upwardly extending shoulder portion extending upwardly and longitudinally outwardly of the said box-like base of the vault toward the adjacent one of said end walls; and
 - (e) each of the said transversely extending members having
 - (1) an inwardly extending recess formed therein under the said upwardly extending shoulder portion thereof and extending generally parallel to the said shoulder portion for the reception of a vault lifting device by which the said box-like base of the said vault may be raised and lowered.
2. A burial vault as defined in claim 1 in which the body of each of the said transversely extending members
 - (a) extends between the said side walls of the said base and has outer end portions which are integrally joined to the said side walls of the said base; and in which the said outer end portions of the said transversely extending members provide
 - (b) reinforcing means for reinforcing the said side walls of the said base.
3. A burial vault as defined in claim 1 in which
 - (a) the said recesses in the said transversely extending members terminate inwardly of the said outer end portions of the said transversely extending members.
4. A burial vault as defined in claim 1 in which the said box-like base comprises:
 - (a) a concrete wall component; and
 - (b) a molded synthetic plastic resinous liner component; adhesively and integrally bonded to the said concrete wall component; and in which
 - (c) each of the said transversely extending members is formed of complementary and correspondingly shaped matching portions formed as integral parts of the said concrete wall component and of the said molded synthetic plastic resinous liner component of the said bottom wall of the said base.
5. A burial vault as defined in claim 1 in which
 - (a) auxiliary reinforcing means is embedded in each of the said transversely extending members.
6. A burial vault as defined in claim 5 in which the said auxiliary reinforcing means is in the form of
 - (a) a pair of spaced auxiliary reinforcing members embedded in each of the said transversely extending members.
7. A burial vault as defined in claim 1 which includes
 - (a) an outer concrete wall component; and
 - (b) a synthetic plastic resinous inner liner component within the said outer concrete wall component and adhesively and integrally bonded thereto; and in which

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- (c) auxiliary reinforcing means is embedded in each of the said transversely extending members.
8. A burial vault as defined in claim 7 in which
 - (a) the said auxiliary reinforcing means are adhesively and integrally bonded to the said concrete wall component of the said bottom wall of the said base.
9. A burial vault as defined in claim 7 in which the said auxiliary reinforcing means is in the form of
 - (a) a pair of reinforcing plate members shaped to conform, in part, to the vertical cross sectional shape of the said transversely extending members; and in which
 - (b) the said reinforcing plate members are adhesively bonded to the said outer concrete wall component of the said bottom wall of the said base; and in which
 - (c) the said reinforcing plate members are spaced laterally of the said transversely extending members between the said side walls of the said base.
10. A burial vault as defined in claim 7 in which each of the said auxiliary reinforcing means is in the form of
 - (a) an auxiliary reinforcing member embedded in the concrete wall component of the said bottom wall of the said base; and in which each of the said auxiliary reinforcing members has
 - (b) spaced ribs formed thereon; and
 - (c) grooves formed therein between the said ribs; and in which
 - (d) the said ribs and the said grooves in the said auxiliary reinforcing members are embedded in the concrete wall component of the said bottom wall of the said base.
11. A burial vault as defined in claim 10 in which the said auxiliary reinforcing means is in the form of
 - (a) a pair of the said auxiliary reinforcing members embedded in the concrete wall component of the said bottom wall of the said base at spaced intervals between the said side walls thereof.
12. A burial vault comprising
 - (a) a box-like base, including
 - (1) side walls;
 - (2) end walls; and
 - (3) a bottom wall extending between the said side walls and the said end walls;
 - (b) transversely extending members each including a body formed as an integral part of the said bottom wall of the said base and extending transversely across the said bottom wall of the said base between the said side walls thereof above the upper surface of the said bottom wall and at spaced intervals between the said end walls of the said base;
 - (c) each of the said transversely extending members including
 - (1) an upwardly extending shoulder portion extending upwardly from the said bottom wall of the said box-like base of the said burial vault;
 - (d) each of the said transversely extending members having
 - (1) an inwardly extending recess formed therein at one side thereof and under the said upwardly extending shoulder portion thereof; and
 - (e) the said recesses extending longitudinally of the said transversely extending members between the said side walls of the said base and generally parallel to the said shoulder portions;
 - (f) each of the said transversely extending members including
 - (1) a portion providing a closed wall extending from said base to the upper extremity of said transversely extending member and throughout the length thereof, and facing one of the said end walls of the said box-like base at one side of the said recess formed therein; and each of the recesses having

- (2) an open side facing toward the other end wall of the said base.
13. A burial vault comprising
- (a) a box-like base, including
- (1) side walls;
 - (2) end walls; and
 - (3) a bottom wall extending between the said side walls and the said end walls;
- (b) transversely extending members each including a body on the said bottom wall of the said base and extending transversely across the said bottom wall of the said base between the said side walls thereof above the upper surface of the said bottom wall and at spaced intervals between the said end walls of the said base;
- (c) the body of each of the said transversely extending members having a recess formed therein for the reception of vault lifting means by which the said base may be raised and lowered;
- (d) the said recesses extending longitudinally of the said transversely extending members between the said side walls of the said base; and
- (e) each of the said recesses being formed in the body of one of the said transversely extending members and having
- (1) a closed inner end portion; and
 - (2) an open outer end portion opening toward one of the said end walls of the said base for the reception of the said vault lifting means.
14. A burial vault comprising
- (a) a box-like base, including
- (1) side walls;
 - (2) end walls; and
 - (3) a bottom wall extending between the said side walls and the said end walls;
- (b) transversely extending members each including a body on the said bottom wall of the said base and extending transversely across the said bottom wall of the said base between the said side walls thereof above the upper surface of the said bottom wall and at spaced intervals between the said end walls of the said base;
- (c) the body of each of the said transversely extending members having a recess formed therein for the reception of vault lifting means by which the said base may be raised and lowered;
- (d) the said recesses extending longitudinally of the said transversely extending members between the said side walls of the said base;
- (e) each of the said recesses being formed in the body of one of the said transversely extending members and having

- (1) a closed inner end portion; and
 - (2) an open outer end portion opening toward one of the said end walls of the said base for the reception of the said vault lifting means; and
- (f) each of the said recesses extending only part way longitudinally across the said transversely extending member between the said side walls of the said base.
15. A burial vault comprising
- (a) a box-like base, including
- (1) side walls;
 - (2) end walls; and
 - (3) a bottom wall extending between the said side walls and the said end walls;
- (b) transversely extending members each including a body on the said bottom wall of the said base and extending transversely across the said bottom wall of the said base between the said side walls thereof above the upper surface of the said bottom wall and at spaced intervals between the said end walls of the said base;
- (c) the body of each of the said transversely extending members having a recess formed therein for the reception of vault lifting means by which the said base may be raised and lowered;
- (d) the said recesses extending longitudinally of the said transversely extending members between the said side walls of the said base;
- (e) the said transversely extending members projecting above the upper surface of the said bottom wall of the said base; and providing
- (f) a casket rest for supporting a casket thereon;
- (g) a pair of spaced auxiliary reinforcing members embedded in each of the said transversely extending members; and
- (h) the said auxiliary reinforcing members being spaced laterally of the said transversely extending members between the side walls of the said base.

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