Aug. 24, 1937. J. R. KIRBY 2,090,844

BURIAL VAULT

Filed June 17, 1935

Fig. 1.

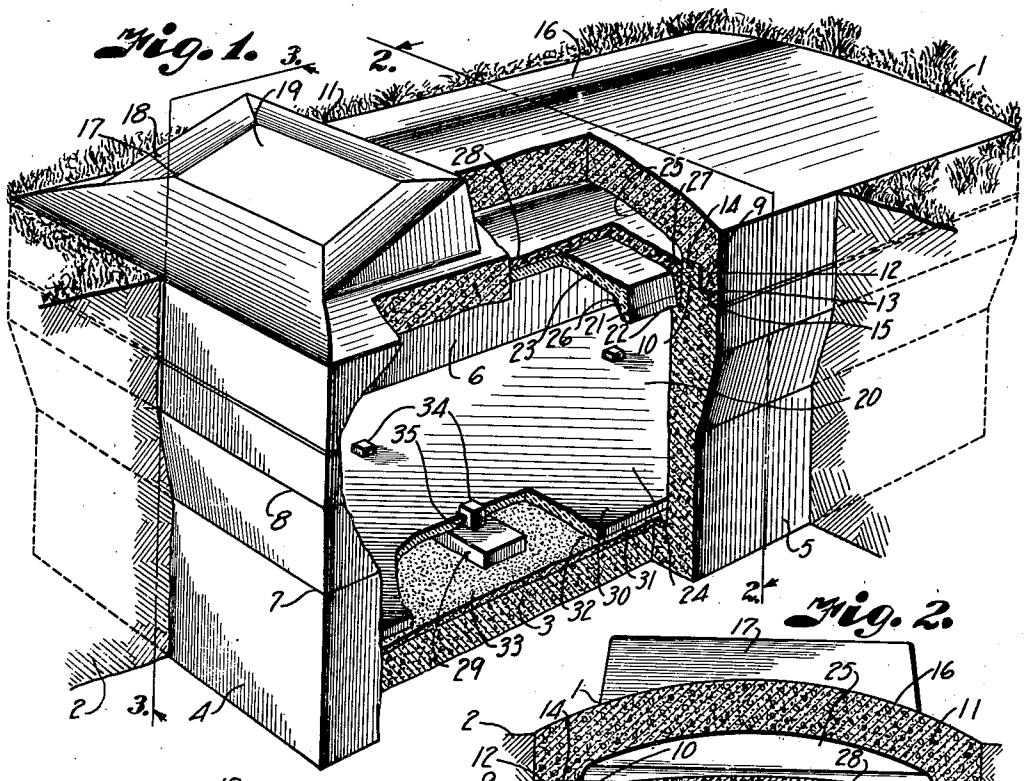


Fig. 2.

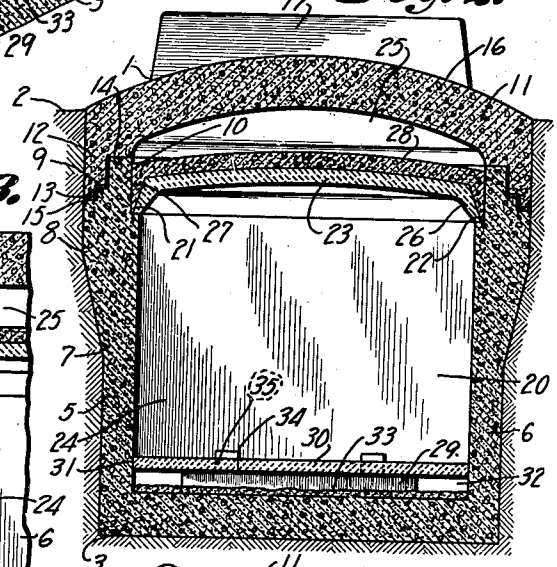


Fig. 3.

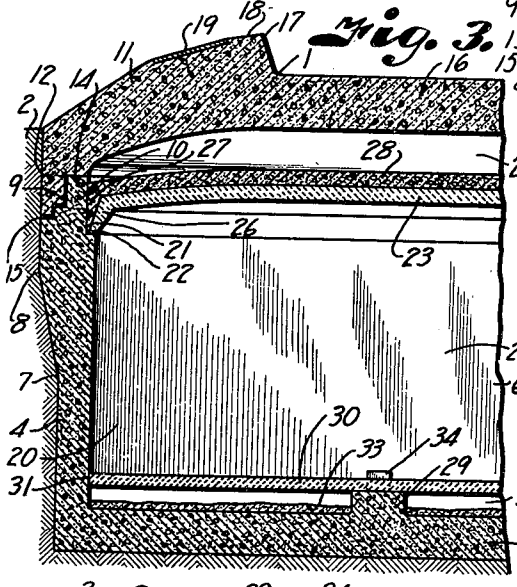


Fig. 4.

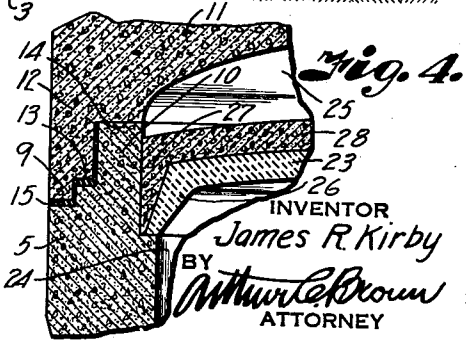
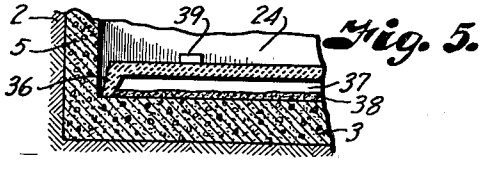


Fig. 5.



INVENTOR
James R. Kirby
BY
Arthur C. Brown
ATTORNEY

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BURIAL VAULT

James R. Kirby, Independence, Mo.

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2 Claims. (Cl. 72—7)

This invention relates to burial vaults, and more particularly to a burial vault constructed of concrete or similar material designed to prevent circulation of moisture laden air in the interior of the vault tending to impair the contents of the vault.

The human body is composed of about eighty percent water and after a corpse has been disinterred the body has been found to have produced a quantity of water in the bottom of the vault due to deterioration of the body. In localities having varying climatic conditions with wide changes in temperature, even though the casket is below the freeze line of the earth, the change in outside temperature caused by varying weather conditions has been found to affect the air in the interior of the vault to such an extent that the water produced by the corpse tends to vaporize at high exterior temperatures and condense at lower exterior temperatures thereby setting up a circulation of moisture laden vapors which quickly deteriorates the casket and the corpse.

Various types of burial vaults have been constructed of concrete and provisions made to prevent entrance of water into the vault and to enhance the preservation of a corpse contained in the vault. The problem of preventing deterioration of the interred corpse, however, from contact with moisture which ordinarily accumulates from deterioration of the body in the vault, has not, heretofore, been satisfactorily solved.

The principal objects of the present invention are, therefore, to decrease circulation of moisture laden air in the vault; to provide for trapping moisture carried by such circulating air to further enhance preservation of the corpse contained in the vault; to provide a seal preventing extraneous water from entering the casket chamber; and to insulate the casket chamber for maintaining a more constant temperature in said chamber.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a burial vault constructed in accordance with the present invention, parts of walls thereof being broken away to better illustrate the construction.

Fig. 2 is a vertical cross section of the burial vault on the line 2—2, Fig. 1, showing insulating air spaces and moisture absorbent mediums.

Fig. 3 is a fragmentary section through the burial vault on the line 3—3, Fig. 1.

Fig. 4 is a fragmentary detail section showing the upper sealing elements of the burial vault.

Fig. 5 is a fragmentary detail sectional view of a modified form of the secondary bottom having a peripheral downturned flange for its supporting legs.

Referring more in detail to the drawing:

1 designates a burial vault constructed of waterproof concrete embedded in the earth 2 and comprising a bottom or floor 3, end walls 4, and side walls 5 and 6.

The outer faces of the side and end walls of the burial vault are gradually tapered upwardly and outwardly from a point 7 midway of their height and culminate in a thick heavy wall at the freeze line 8 of the earth in order to provide an increased concrete resistance above the freeze line, to reduce penetration of ground water, and to additionally insulate the interior of the vault from exterior temperature changes. The outer upper corners of the side and end walls are offset to provide a series of peripheral ledges or steps 9 continuing around the edges of the walls which terminate in an upwardly extending flange 10 adapted to receive a main outer cover 11.

The cover 11 is also constructed of concrete and is curved to form a concavo-convex arch portion having downwardly extending flange portions 12, the lower inside edges of which are offset, as at 13 and 14, to seat upon the ledges 9 and the flange 10 of the side and end walls to provide a securely fitting joint with the cover when the latter is rested thereon.

Asphalt, or other waterproof adhesive 15 may be applied at the joint between the cover and walls to prevent entrance of moisture to the interior of the structure.

The exposed upper surface 16 of the cover 11 may be finished by polishing if desired to provide an attractive appearance and is further provided with an integral monumental portion 17 bevelled at its edges, as at 18, and extending upwardly and rearwardly at an angle to the longitudinal base line of the cover 11 in such a manner that an inscription surface 19, suitable for bearing epitaphs, names, dates, or other identifying indicia, is presented to full view.

It is desirable to maintain the chamber 20 formed by the bottom and walls of the vault at an even temperature, as well as to seal it against any extraneous moisture which might seep into the cover. I, therefore, provide the interior faces of the side and end walls with an inset groove 21 forming a continuous peripheral edge 22 around the walls for receiving a porous insulat-

ing plate 23 of gypsum or like hygroscopic material which divides the chamber into a casket compartment 24 and an insulating dead air space 25. The plate 23 is slightly curved to form an arched roof having downturned flanges 26 extending at an angle to the vertical walls of the vault to rest securely on the ledge 22 and yet leave a space 27 between the walls and the flanges for a layer of cement for sealing the plate into the vault.

In order to further enhance the sealing and insulating of the casket compartment 24, a layer 28 of cement may be poured over the entire plate 23 to form a waterproof coating over the porous plate and prevent any water in the space 25 under the cover from seeping into the casket compartment.

The plate 23 being of porous material absorbs any water vapor in the air in the casket compartment and will retain it until the exterior temperatures fall sufficiently for the effect to penetrate the dead air space and cement seal to cause the moisture to fall or return to the chamber 24 in the circulation of the air.

With the vault constructed as above described, the temperatures in the casket compartment 24 are maintained as nearly constant as is possible, but there will still be sufficient change to cause evaporation and condensation of the water which has been produced by the disintegration of the body. The plate 23 will absorb a portion of the vapor in the air, but there will still be a quantity of water on the bottom of the vault to replace the moisture in the air.

In order to trap the water in the vault, I provide the bottom 3 with integral transverse blocks 29 for supporting a secondary bottom or floor 30 of porous moisture absorbent material such as gypsum or like hygroscopic material. The secondary floor 30 is of the same shape as the bottom of the vault, the edge 31 thereof closely engaging the side and end wall of the vault. The floor, being porous, will readily allow all water to pass through into the space 32 and lie on the bottom of the vault. The insulating quality of the material will also tend to prevent the temperatures in the casket compartment 24 from effecting any evaporation of the water on the bottom of the vault and as the upper plate will absorb the vapor in the air, the casket space will remain dry.

To further trap the water and effect its retention below the secondary floor, the bottom of the vault is coated with a thin layer of suitable colloidal or gelatinous material 33, such as aqua gel, or like hygroscopic material, for absorbing and holding the moisture as it accumulates on the bottom 3 of the vault, the space 32 being of sufficient height to allow for any expansion of the material due to absorption of the water.

Since it is impossible for the water to evaporate out of the colloidal material 33 at the temperatures possible below the insulating secondary floor 30, the water is definitely trapped and the changes in temperature in the vault will effect circulation of only dry air within the casket compartment.

I prefer to support the casket (not shown) in slightly elevated position relative to the secondary floor 30. The blocks 29 are therefore provided with upwardly extending integral projections 34 which extend through openings 35 in the secondary floor and form rests for the casket, thereby keeping the casket out of any moisture that might be present on the floor 30.

The modified form of secondary floor shown in Fig. 5 of the drawing is supported on downwardly extending flanges 36 which engage the bottom 3 of the vault to maintain a space 37 for the colloidal material 38 in the bottom of the vault. The projections 39 for supporting the casket are made integral with the secondary floor and extend upwardly sufficiently to space the casket therefrom.

Assuming a burial vault to be constructed as described, the assembly thereof for interment of a corpse may proceed as follows:

The uncovered burial vault, comprising the bottom 3, end and side walls 4, 5 and 6, colloidal coating 33 and gypsum floor 30 having been placed in the ground, a casket containing a corpse is lowered into the container to rest on the projections 34. The upper gypsum plate 23 is then seated on the ledges 22 and a layer 28 of concrete may, if desired, be plastered over the top of the plate 23 to seal the enclosure against penetration of mosture and air. Sealing material 15 is then coated over the peripheral ledges 9 and the main cover 11 finally placed over the container and seated on the ledges 9 and flange 10 to complete the structure.

What I claim and desire to secure by Letters Patent is:

1. A burial vault including a container having a bottom provided with transverse blocks having upwardly extending projections for supporting a casket, side and end walls for the container having a series of offsets on the outer surface thereof to provide an upwardly extending tongue, an absorbent gypsum roof supported on the inner faces of the walls, a concrete sealing coating above the roof and within the walls of the container, a cover having a downwardly extending flange and a series of offsets for seating on the tongue and offsets of the walls to seal the vault and whereby a dead air space is provided between the sealing coat and cover, and adhesive material between the walls and cover for hermetically sealing the vault.

2. A burial vault including top, bottom, end and side walls forming a closed chamber, a porous partition extending substantially horizontally and closely engaging the side and end walls to divide said chamber into an upper casket compartment and a lower liquid collecting compartment, casket supports carried on the bottom wall and having portions to support said partition and having portions extending through the partition to support a casket in slightly spaced relation with the partition, and a hygroscopic material in the liquid collecting compartment for absorbing liquid drained from the casket compartment through said porous partition.

JAMES R. KIRBY.