C. H. MARQUESS.

BATTERY VAULT CONSTRUCTION.

APPLICATION FILED OCT. 5, 1917.

1,281,406. Patented Oct. 15, 1918.

Fig. 1.

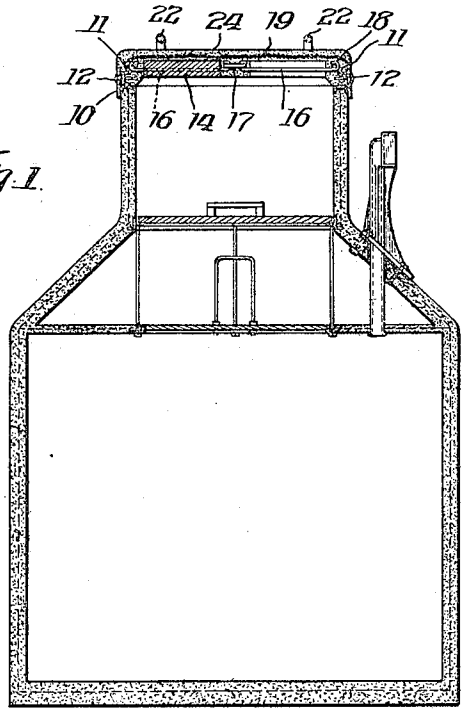
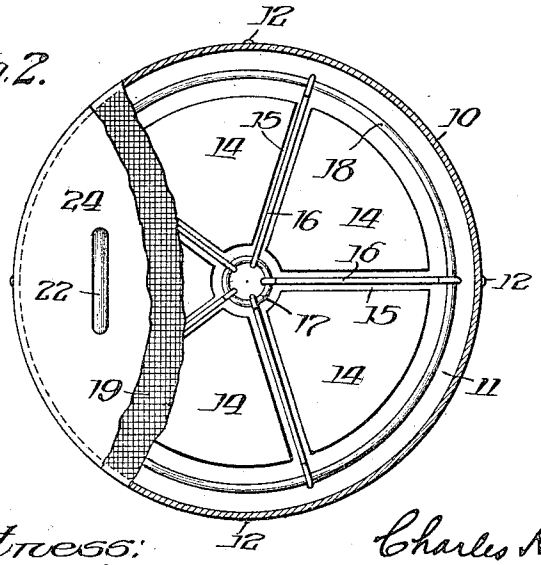


Fig. 2.



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UNITED STATES PATENT OFFICE.

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BATTERY-VAULT CONSTRUCTION.

1,281,406. Specification of Letters Patent. Patented Oct. 15, 1918.

Application filed October 5, 1917. Serial No. 194,836.

To all whom it may concern:

Be it known that I, CHARLES HENSON MARQUESS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Battery-Vault Construction, of which the following is a specification.

My invention relates to construction for battery vaults. Its objects are to provide a strong and relatively cheap form of closure for the top of the vault, and one having notable frost insulation properties.

In the accompanying drawings, which form a part of this specification, Figure 1 is a medial vertical section through a vault having these improvements thereon, the cover being shown in medial section.

Fig. 2 is an enlarged top view of the cover variously broken away to show details of construction.

The cover as illustrated comprises a ring of flat metal 10 to which is secured the channel iron 11, also annular, as by means of bolts or rivets 12. A plurality of sectors of cork 14 are arranged so as to leave intervening spaces 15 between them and in these spaces rods 16 are laid in radial directions having their ends interhooked with an iron ring 17 and a second ring 18. A layer of wire mesh fabric 19 of substantially the cross area of the ring 10 is positioned slightly spaced from the cork material. Metallic handles 22 are also positioned to have their ends engaged by the cement.

With the parts so arranged, which may be on any suitable form block, plastic cementitious material 24 is applied covering the reinforcing elements 16 and 19, the material becoming interlocked with the legs of the channel 11, and engaging the cork sectors at edge portions, holding them in position. I preferably apply the plastic material, usually composed of cement, sand and water, by means of a cement gun whereby a very strong cement of fine texture is formed adhering tightly to the several metallic parts.

The cork sections not only provide substantially a layer of cellular organic matter of high frost insulating properties, but importantly, their presence, or the presence of equivalent spacing means, enables the formation of a disk of reinforced concrete having a relatively thin wall throughout its general area while providing thereon reinforcing ribs and other projections of concrete adapted to afford strength, and, further, the reinforcing rods 16 are so disposed as to communicate their strength to the structure as a whole although being embedded intermediate their ends in but relatively small masses respectively of the hardened plastic material. Another important advantage of the construction is in the fact that in vault covers for localities where the question of freezing is not important the cork material may be removed after serving as cores, and thus a light weight, strong and durable closure may be had at relatively low cost.

I claim:

1. A cover for a manhole comprising in combination an outer metallic ring having a normally downwardly projecting flange and inwardly projecting elements adapted to hold concrete, a plurality of reinforcing bars, sections of frost insulating material adjacent to the bars, and concrete embedding the bars.

2. A cover for a manhole comprising in combination frost insulating material adjacent to one side thereof, metallic bars adjacent to the frost insulating material, mesh material adjacent to said bars, an outer metallic ring, and hardened plastic material embedding the reinforcing material and holding the frost insulating material.

3. A closure for a manhole comprising in combination an outer metallic ring, reinforcing material in substantially radial arrangement within the general area of the ring, a layer of mesh reinforcing material, and hardened cementitious material embedding the mesh and reinforcing material and in holding engagement with the ring.

CHARLES HENSON MARQUESS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."