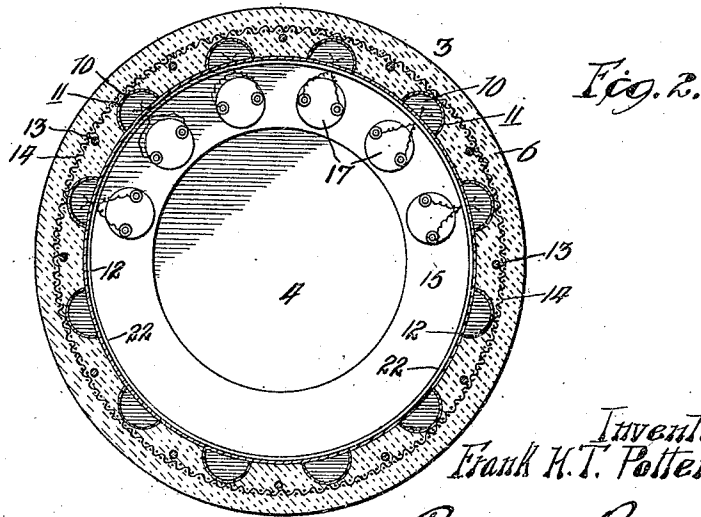
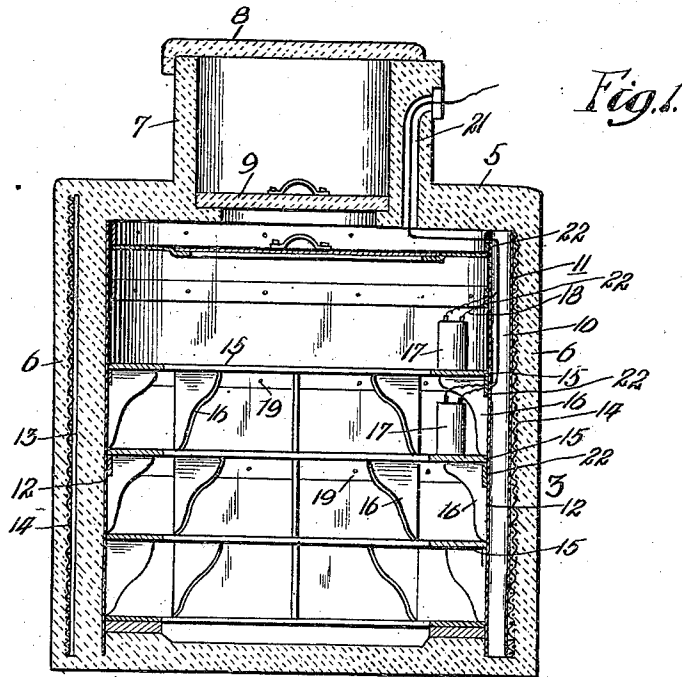


F. H. T. POTTER.
BATTERY VAULT.
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991,085.

Patented May 2, 1911.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK H. T. POTTER, OF CHICAGO, ILLINOIS.

BATTERY-VAULT.

991,085.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK H. T. POTTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Battery-Vaults, of which the following is a specification.

The battery vault of the present invention is intended primarily for the reception and protection of electric batteries used in the operation of railway signal systems. In the operation of such systems, especially in the northern sections of the country, where the winters are long and severe, and where the batteries must be located at stated intervals along the track in sparsely populated portions of the country, it is highly desirable that the vaults in which they are stored shall afford ample protection against excessive changes in temperature, and against the ingress of frost or moisture. It is furthermore necessary, or highly desirable, that the vault be of such form that the body thereof can be buried a considerable depth underground, leaving only a short portion of the neck projecting above the ground, in the form of a manhole, adapted to afford access to the interior of the vault.

The object of the present invention is to provide a battery vault of the character indicated, which shall possess great strength in proportion to its weight, and which will be so formed as to afford suitably arranged conduits in the wall of the vault for the reception of the battery wires, and which will also afford dead air spaces, which serve to insulate the interior against changes in temperature.

A further object of the invention is to secure the above results in a manner which will avoid complications in the molding operation of the vault, whereby the cost of the vault will not be materially increased by the presence of the features above referred to.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a vertical sectional elevation of the vault; and Fig. 2 a cross sectional view of the same.

The vault is formed to afford an enlarged body 3, preferably of cylindrical shape, having a floor 4, a roof 5, and an inclosing ver-

tical wall 6. The roof has formed thereon, an upwardly projecting neck 7, preferably of cylindrical shape and of reduced diameter. The neck affords a manhole of a size to permit ingress to the battery chamber in the interior of the vault. The neck is closed by means of an outer cover 8 and an inner cover 9. The outer cover is preferably formed to fit down over the top of the neck, and the inner cover is formed to rest upon an inwardly extending annular flange or ledge formed at the inner end of the passage-way through the neck.

The above formation is common in battery vaults and need not be further described.

The present invention, in the main, relates to the formation of the vertical wall of the vault. In certain prior constructions, it has been the practice to form this wall of a uniform thickness of cement, which surrounds and embeds a cage or frame-work, consisting of metal bars and a surrounding mesh. The present invention differs from the vault described above in that the inner face of the cement wall is provided, at recurrent intervals, with vertical channels 10, which are preferably semi-cylindrical in cross section. These channels are preferably formed, during the molding or pouring of the cement, by fitting in the form, a plurality of vertically disposed strips or sections 11 of thin material, as, for instance, fibroid, bent to channel formation, which strips or sections remain in and form a lining for the strips or channels. The inner face of the wall is covered or sheathed by a lining 12, preferably of asphaltum paper, which bridges the vertically disposed channels and abuts against the intervening solid sections of cement, with the result that a plurality of dead air spaces are afforded, which arrangement affords great strength and resistance to outside pressure in proportion to the weight of the resulting vault. The channels or spaces are closed at their ends, in the formation shown, by the cement of the floor and roof of the vault respectively, although it is not the intention to limit the invention to a vault having channels or spaces of any given length, since the channels might be of less length without materially changing the character of the invention.

In the formation of the vertical wall or vault, in order to reinforce the structure, a plurality of vertically disposed rods or bars

13 are embedded in the wall, and these rods or bars preferably occupy positions intermediate the channels, as shown in Fig. 2. The rods or bars co-act with a surrounding mesh 14, which serves to afford a substantial reinforcement to the structure as a whole. A suitable reinforcement is also afforded for the remaining portions of the structure, although the present invention is not concerned with the details of such reinforcement.

Within the battery chamber are arranged a plurality of circumferentially extending shelves 15, which are preferably supported by braces or brackets 16, and upon the shelves are located batteries 17. Each of the batteries has connected therewith circuit wires 18, which lead from the battery through inlet holes 19 in the inner lining of the chamber and into the adjacent channel, which serves as a conduit for leading the wires to a point near the top of the chamber, whence they emerge through outlet holes 20 immediately under the roof of the vault, being thereafter led to a trunking outlet pipe 21 of elbow shape, which passes through the wall of the neck and emerges from the neck near the top thereof and in position to permit an overground connection to be made with the signal wires when the vault is embedded to the desired depth. In order to reinforce the lining around the inlet and outlet holes, strips or bands 22 of the material of which the lining is composed, are secured thereto, to afford the necessary reinforcement at the points where the holes are formed.

In use, the battery will be embedded so that only the upper portion of the neck and the upper cover will project above the ground, a considerable amount of earth resting upon the roof of the vault, which serves to hold the vault securely in its bed.

By forming the channels in the manner indicated, each channel will serve a threefold function, in affording a conduit for the wires, in furnishing dead air spaces, and in affording greater strength and rigidity in proportion to the weight of cement employed in forming the vault. The formation is also one which conforms to the arrangement of the batteries on shelves, one above another, so that all of the superposed batteries adjacent to a single channel may utilize such channel as a conduit for the wires. By stringing the wires through the channels, the interior of the vault will be unobstructed by

a multiplicity of wires which might become entangled, one with another, unless fastening means of some sort were provided for securing them in place. By arranging the wires in the channels, the necessity for such fastening devices is obviated and a much better and more perfect disposition of the wires is secured. By forming the vault with channels, a greater maximum thickness of the walls can be secured with a given weight of cement and with an increase in strength, and this increase in thickness, combined with the presence of the dead air spaces, affords better resistance and insulation against frost and cold, which is of the utmost importance in the present art.

Although the invention has been described with considerable particularity as to detail, it is not the intention to limit the invention strictly to the exact arrangement and formation of the features disclosed, since changes or modifications, clearly within the scope of the invention, might be made without materially modifying the character of the resulting vault.

I claim:

1. A battery vault comprising a body portion affording a battery chamber, there being in the vertical wall of the body a channel, and an upwardly projecting neck connected to the body and provided with a trunking outlet conduit through which battery wires may be carried whereby the battery wires may pass up through said channel and trunking conduit to the exterior of the vault, substantially as described.

2. A battery vault of cement or the like, having formed in the inner face of its wall a plurality of channels, and an inner lining for the wall bridging the channels and furnishing dead air spaces, substantially as described.

3. A battery vault of cement or the like having formed in the inner face of its wall a plurality of channels, an inner lining for the wall bridging the channels and furnishing dead air spaces, and a trunking outlet through which wires may be led after emergence from the channels whereby said wires may pass up through said channels and trunking outlet to the exterior of the vault, substantially as described.

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Witnesses:

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