

No. 744,199.

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F. J. & G. W. HUBBELL.

CAVE.

APPLICATION FILED NOV. 8, 1902. RENEWED AUG. 8, 1903.

NO MODEL.

Fig. 1.

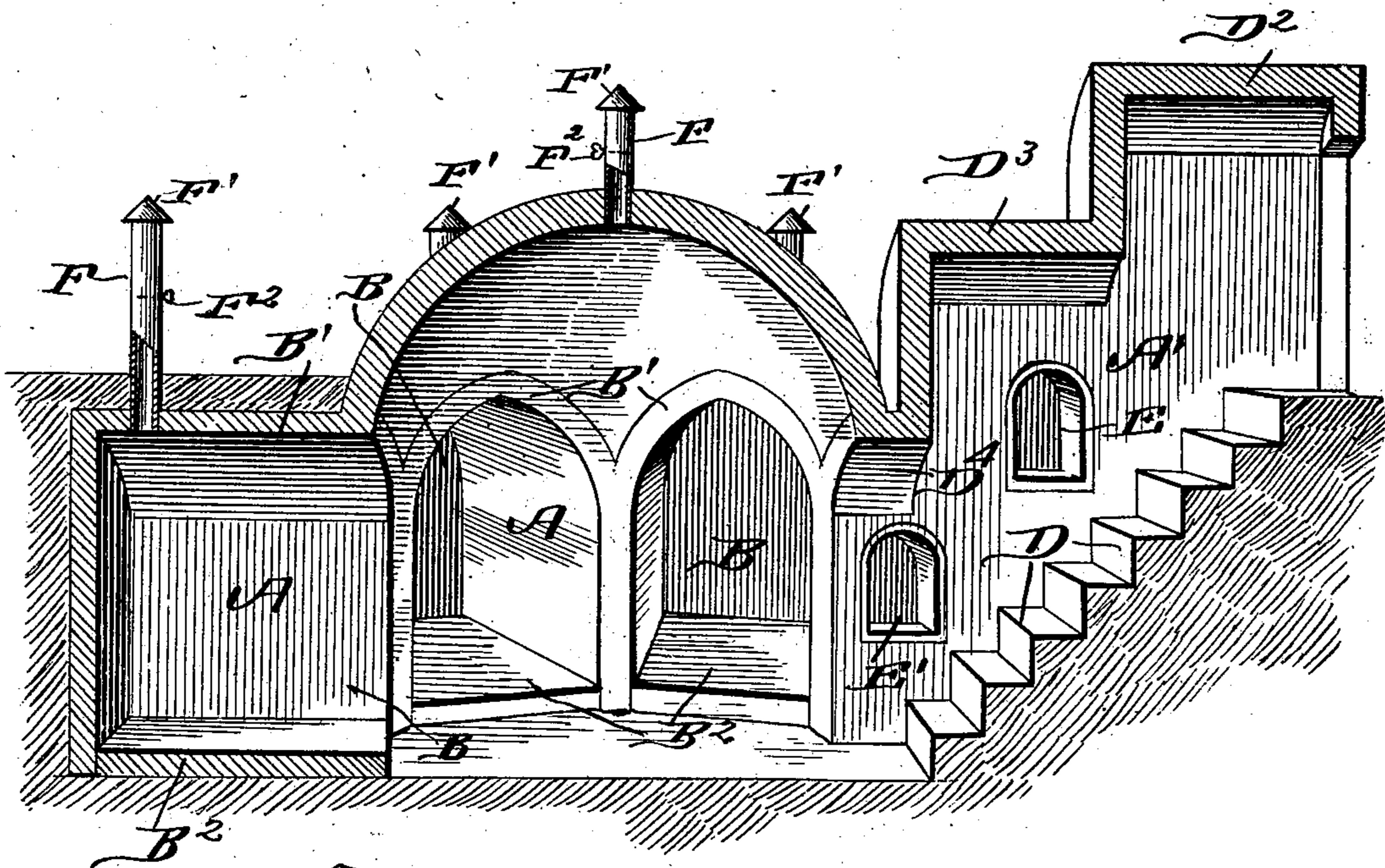
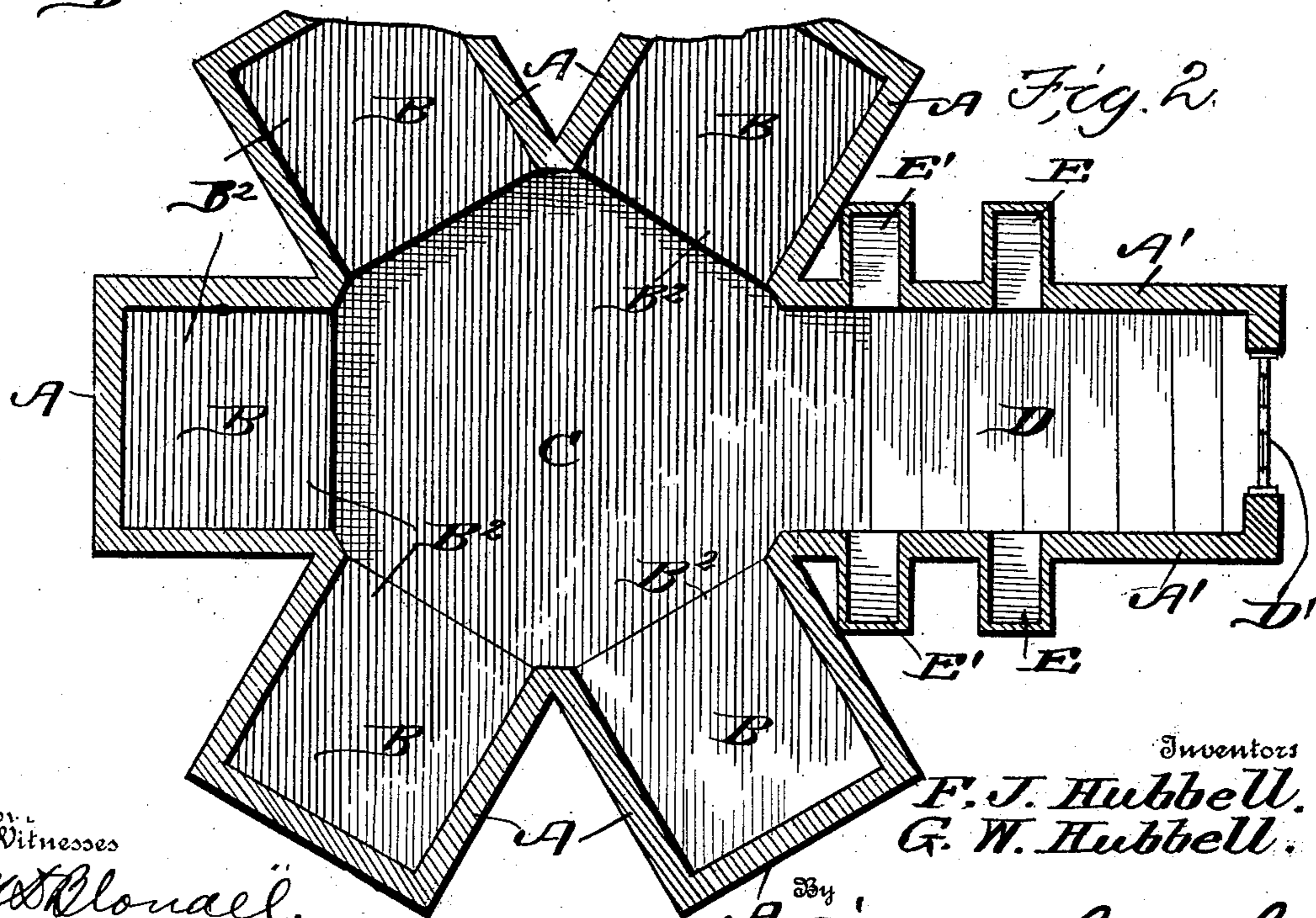


Fig. 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## CAVE.

SPECIFICATION forming part of Letters Patent No. 744,199, dated November 17, 1903.

Application filed November 8, 1902. Renewed August 8, 1903. Serial No. 168,842. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK J. HUBBELL and GEORGE WASHINGTON HUBBELL, citizens of the United States, residing at St. Charles, in the county of Madison and State of Iowa, have invented a new and useful Cave, of which the following is a specification.

Our improvement relates to caves of the kind sometimes termed "cyclone-cellars" or "tornado-vaults;" and the object is to build an artificial cave or vault which will serve as a place of protection during cyclones and also as a convenient place to store farm produce at all times. To serve in this double capacity, it is essential that the cave be protected from the wind, be dry, and have some system of ventilation.

Our construction is fully shown in the accompanying drawings, in which—

Figure 1 is a perspective sectional view through the stairway and center of the building. Fig. 2 is a plan view of the cave.

In carrying out our improvement we make an excavation of a sufficient size and depth and construct therein a building of stone or brick, having a central domed compartment and a stairway-passage leading downward to it.

In the drawings, A represents the vertical side wall of the cave, and A' the side walls of the stairway. Even at its highest point the wall A does not extend to the surface of the earth. The wall A is of such configuration that it incloses five vaults B, which are arranged radially around the central compartment C.

At the head of the stairway D is door D', the stairway being covered by two arches D<sup>2</sup> D<sup>3</sup>, while at the foot of the stairs is an arch D<sup>4</sup>. Upon either side of the stairs open vaults E E', the latter being in a lower plane than the former. These vaults are also arched over, their floors being some distance above the steps upon which they open. Each of the vaults B is arched over by a Gothic arch B'. The floors B<sup>2</sup> of the vaults B are on a higher level than the floor of the central compartment. The central compartment is covered by a dome C', rising from

the arches B' and D<sup>4</sup>. The vaults B are entirely underground, the dome C' and the walls A' and arches D<sup>2</sup> D<sup>3</sup> being the only parts above the surface.

In order to secure ventilation, pipes F, having hoods F', extend upward from the central dome and from each vault, those from the vaults having dampers F<sup>2</sup>, which can be turned from without the cave.

The vaults E E' are especially adapted for the storage of butter, milk, &c., while the vaults B will serve for the storage of other articles of farm produce. The central compartment or the vaults B will also afford protection in case of cyclones, there being no portion of the vaults that would be exposed in any way to damage from a wind-storm.

It will be seen, therefore, that we have devised a cave fully adapted to carry out the objects enumerated in the first part of this specification.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an artificial cave, a central compartment arched vaults radiating from said center, a passage and stairway leading down to said compartment, a dome over the central compartment resting on the arches of the vaults, the top of said vaults being below the surface of the ground and means for ventilating said cave.

2. An artificial cave, comprising a central compartment the floor and side walls of said compartment being below the surface of the ground, a passage-way having an arched roof and inclosing a stairway leading down to said central compartment, vaults having arched roofs extending radially from the central compartment, the floor of said vaults being above the level of the central compartment and their roofs being below the surface of the ground, and ventilating-pipes extending upward from the dome and vaults.

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Witnesses:

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