2 Sheets--Sheet 1.

A. L. STIMSON.

Metallic Vaults.

No. 143,309. Patented September 30, 1873.

Fig 1.

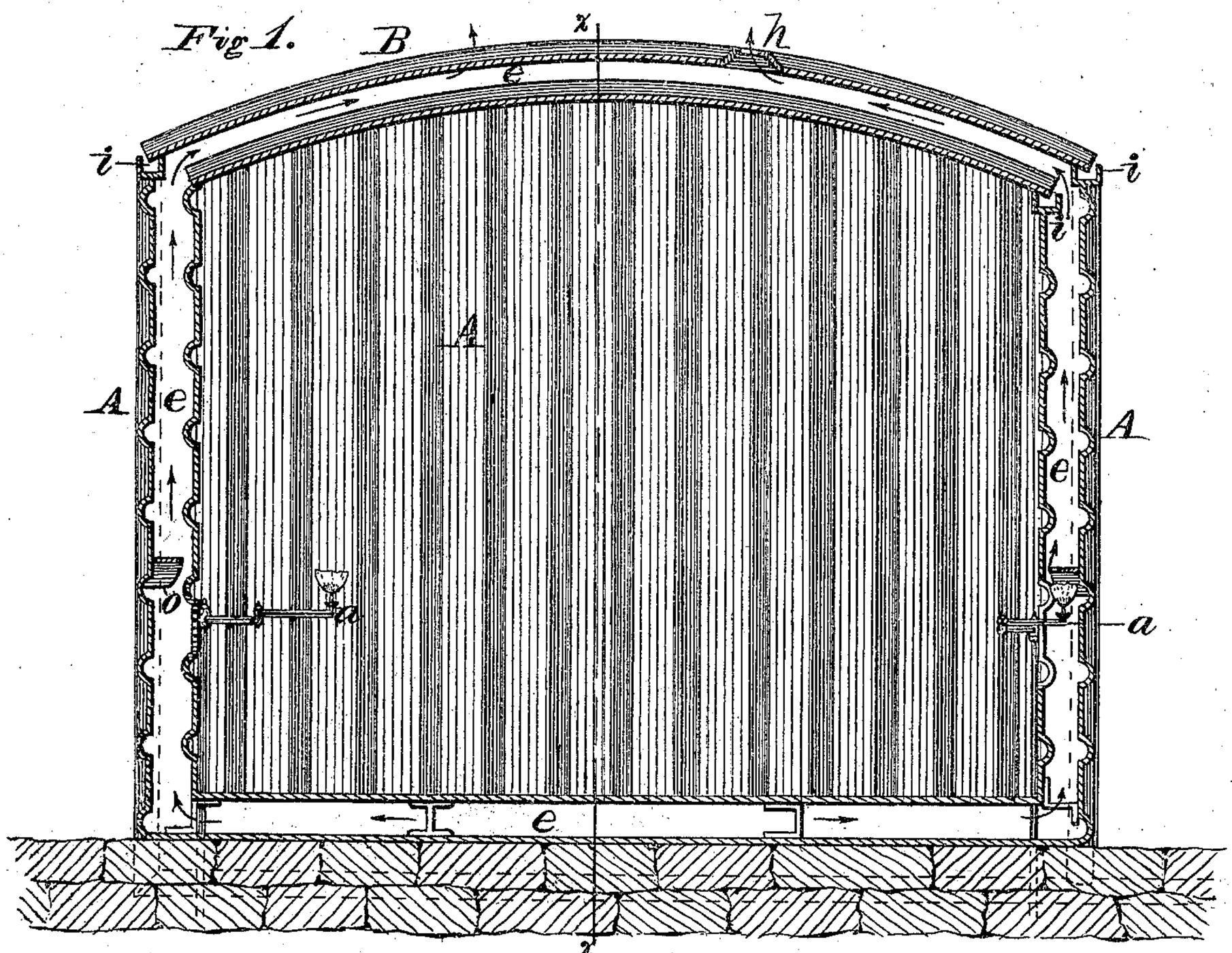
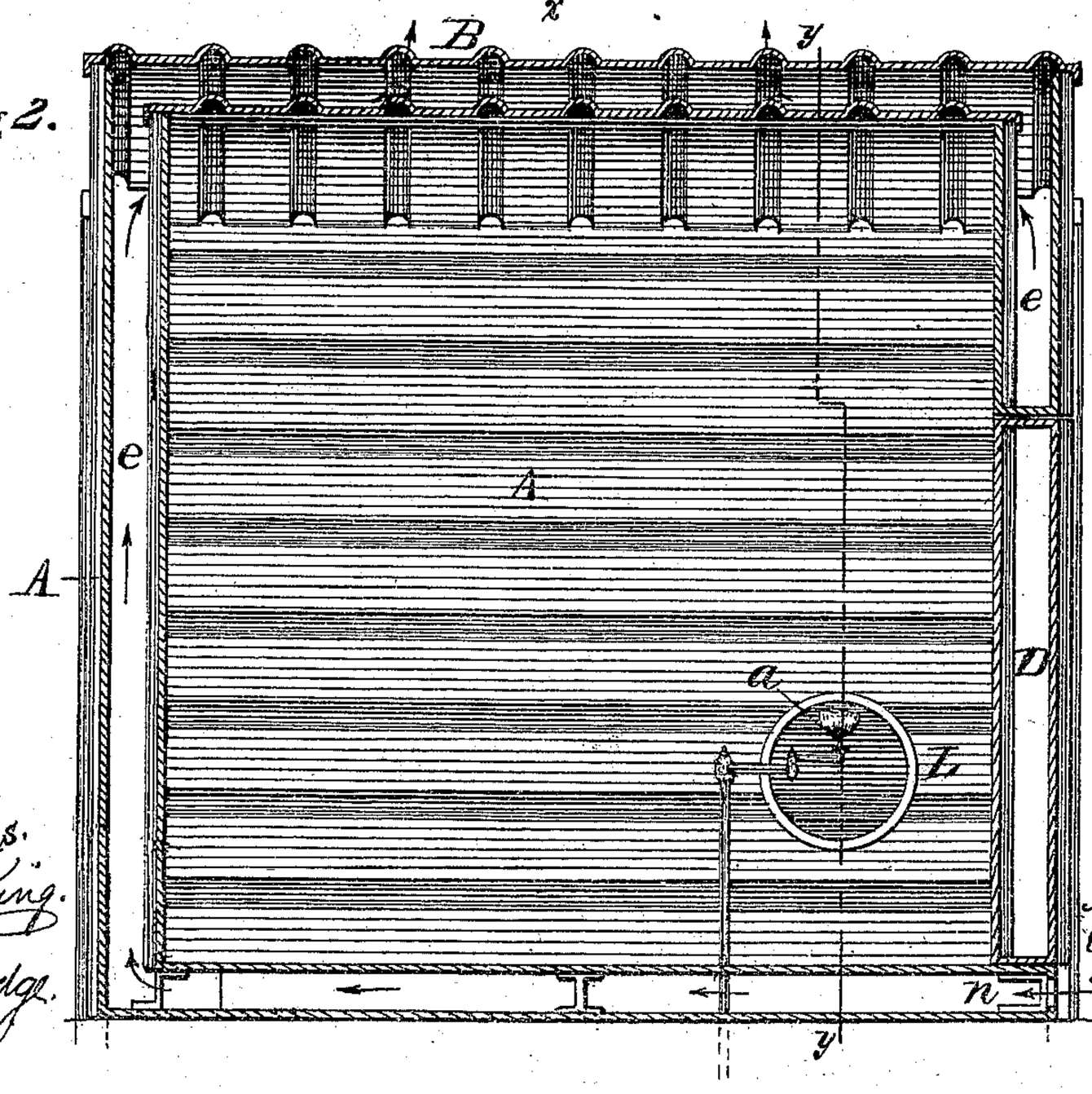


Fig 2.



Witnesses.
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H. H. Dodge.

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by Dodgerson
Attys.

2 Sheets--Sheet 2.

A. L. STIMSON.

Metallic Vaults.

No. 143,309. Patented September 30, 1873.

Fig 3.

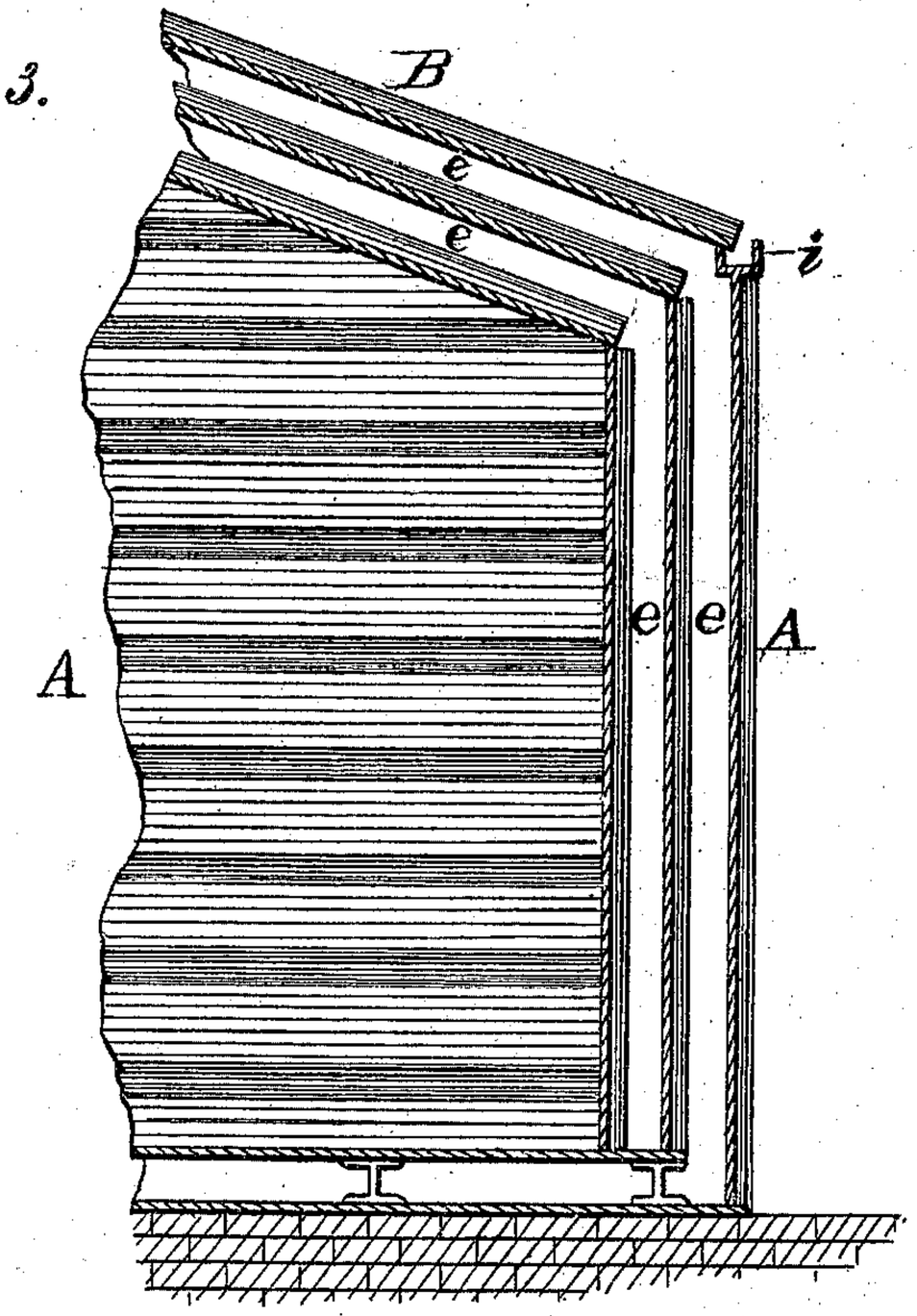


Fig 4.

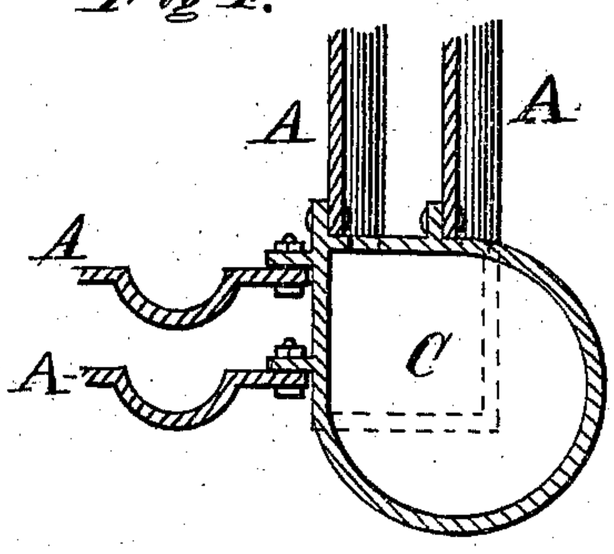
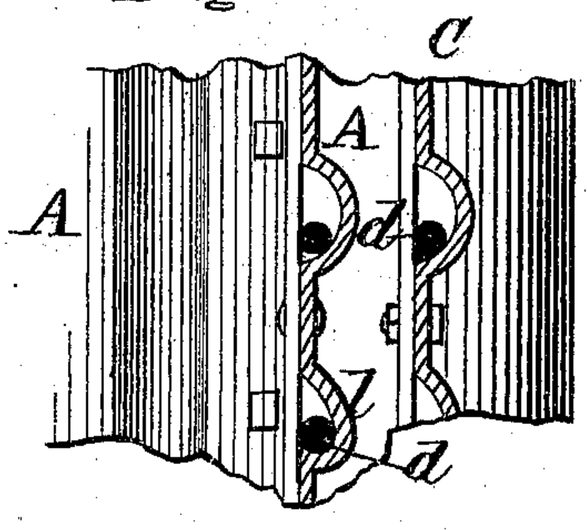


Fig 5.



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UNITED STATES PATENT OFFICE.

ALEXANDER L. STIMSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN METALLIC VAULTS.

Specification forming part of Letters Patent No. **143,309**, dated September 30, 1873; application filed August 25, 1873.

To all whom it may concern:

Be it known that I, ALEXANDER L. STIMSON, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Safety-Vaults, of which the following is a specification:

My invention relates to vaults used for the safe keeping of records, papers, or valuables of any kind; and the invention consists in so constructing the vaults as to carry off the moisture that condenses on the walls, and in providing means for ventilating and drying the same in order the better to preserve their contents.

Figure 1 represents a transverse vertical section of a vault embodying my improvements taken on the line *y y* of Fig. 2. Fig. 2 is a similar view taken on the line *x x* of Fig. 1. Fig. 3 represents a modification of the same; and Figs. 4 and 5 represent certain details.

As is well known it has of late become customary to construct large vaults for the special purpose of storing and safely keeping valuables of all kinds; and experience has demonstrated that such vaults, which are necessarily made of masonry and metal, are apt to become damp by the condensation of moisture upon their interior surfaces, whereby their contents, especially when composed of papers, are apt to become injured, and as usually constructed there is no means of remedying this evil when it occurs, or of preventing its occurrence.

In order to remedy these difficulties I construct my improved vault as follows: After having provided a suitable foundation I erect thereon a room, the walls of which I construct of metal, preferably of corrugated plates secured in any suitable manner, and, if desired, for safety and strength, inclose it securely with masonry.

The corrugations in the wall-plates A may extend either vertically, as represented on the rear face of Fig. 1, or horizontally, as in Figs. 2 and 3. At the corners these plates or side walls are fastened to a tubular corner-piece, C, shown in Fig. 4, which may be of any desired form in cross-section, the object of its tubular construction being to serve as a conduit to convey away the moisture from the walls and roof.

The entire walls, sides, bottom, and top I prefer to make double, as shown in Figs. 1 and 2, so as to form between them an air-chamber, *e*, which has an opening to admit air at the front under the door D, as shown at *n*, Fig. 2, the door being so constructed as to close this opening when it is shut. The roof is either curved, as shown in Fig. 1, or is inclined, so as to cause the moisture which condenses thereon to run off at the sides, where I arrange troughs or gutters *i* to receive it, and convey it to the corner tubes C. In the roof a series of holes, *h*, Fig. 1, are made to permit the escape of air, and thus afford a means of ventilating and drying the interior. When the corrugations are arranged vertically a gutter is arranged along the base inside to receive and convey the drip to the corners C, or to other outlet-pipes; and when arranged horizontally the corrugations or grooves should be so shaped as to form gutters, as shown at *l*, Fig. 5, the better to catch and carry off the condensed moisture, and when horizontally arranged they should be inclined longitudinally, so as to cause the fluid to flow to their ends and enter the corner tubes C through holes *d* made for that purpose, as represented in Fig. 5. Instead of the horizontal corrugations it is obvious that narrow strips may be riveted to the face of the plates at suitable intervals, the joint being rendered water-tight by the use of paint or any suitable cement. The corner pieces or tubes C may be made of wrought or cast iron, and they may be made with flanges, as represented in Fig. 4, to secure the plates to, or they may be formed with grooves for the ends of the plates to fit into, as may be preferred, and at their bottom they are connected to pipes which convey the fluid therefrom to the sewer, or to any other desired point. By these means I provide for carrying off all the fluid which may be formed by the condensation of moisture upon or between the walls.

In order to render the walls and the space within the vault more dry, and to perfectly free it from moisture, I make one or more openings in the inner wall, as represented at

L, Fig. 2, and arrange a gas-burner, *a*, so that it can be swung through this opening into the air-space *e* between the walls for the purpose of heating the air therein, thus creating a more perfect ventilation, and thoroughly drying up any moisture that may exist. When the burner is thus arranged and the door of the vault is shut so as to close the air-inlet *n* underneath, it will follow that the air within the vault or room will be drawn through the opening into the air-space *e*, and from thence will pass out through the openings *h* in the roof, thus conveying away the moisture of the room; and when the door is open, by providing a slide for closing the inlet *n*, the air of the vault, which will necessarily become more or less heated by the burners used for lighting purposes, will also pass off through these openings, and thus tend to convey away the moisture, and also the noxious gases formed by the combustion of the gas within the vault. For more effectually accomplishing these purposes openings may be formed in the ceiling or in the side walls near the top, they being provided with slides or other means of closing them when not in use.

It will, of course, be understood that any other means of heating and drying may be used instead of the gas-burners—as, for instance, hot air or steam pipes may be arranged either within the air-space *e* or inside of the room, or both, especially when these means are used for heating the building; but as gas-lights are necessarily used to light the vault I have shown them as being the simplest means of accomplishing the result, they being jointed so they can be swung into the air-space for heating and drying it and the walls, and also swung within the vault when needed for lighting it. It is also obvious that the air-space may be made double, as shown in Fig. 3, if desired, though this is not considered necessary ordinary cases.

To apply my invention to vaults already built they may be lined with the metal plates so arranged as to leave an air-space all around between them and the present walls, and providing suitable gutters and pipes for conveying away the fluid formed by condensation; and in such case the same ventilating and drying means may be used; or, instead of this double walls of plates may be arranged in sections, and fitted together telescopically, so as to adjust them in size to fit within vaults of different sizes, the sections being fitted so they can be adjusted vertically and laterally, by having one section to slide within another; and thus the parts may be made up at the factory, set out, and set up within existing vaults, wherever desired.

As shown at the left-hand side of Fig. 1, I arrange within the air-space *e* a concave plate, *o*, directly over the point occupied by the burner when in the air-space, for the purpose of arresting whatever soot may be formed, and thus preventing it from accumulating upon the interior walls of the air-chamber, this plate *o* being where it can be readily cleaned whenever necessary, either by removing it, or by brushing off the soot into a vessel inserted through the opening.

By these means I am enabled to prevent the accumulation of moisture within vaults, or to remove it therefrom in case it has accumulated; and thus to preserve the contents of the vault in a dry and far more perfect condition.

Having thus described my invention, what I claim is—

1. A vault lined with plates of metal, and provided with gutters or tubes for conveying away the fluid produced by the condensation of moisture, substantially as described.

2. The air-chamber *e*, arranged within the walls of a vault, and provided with one or more inlet and outlet passages, substantially as and for the purpose set forth.

3. In combination with the air-space *e*, the gas-burners *a* or their equivalents, arranged to operate substantially as described.

4. The tubular corner pieces C, arranged to serve as tubes for conveying away the accumulated fluid from the walls of a vault, substantially as set forth.

5. The corrugated metallic lining, arranged within a vault, substantially as described.

6. In combination with the hollow wall or air-space of a vault, and a burner arranged to operate therein, the plate *o*, arranged to operate as and for the purpose set forth.

ALEXR. L. STIMSON.

Witnesses:

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JAMES DILLON.