

(No Model.)

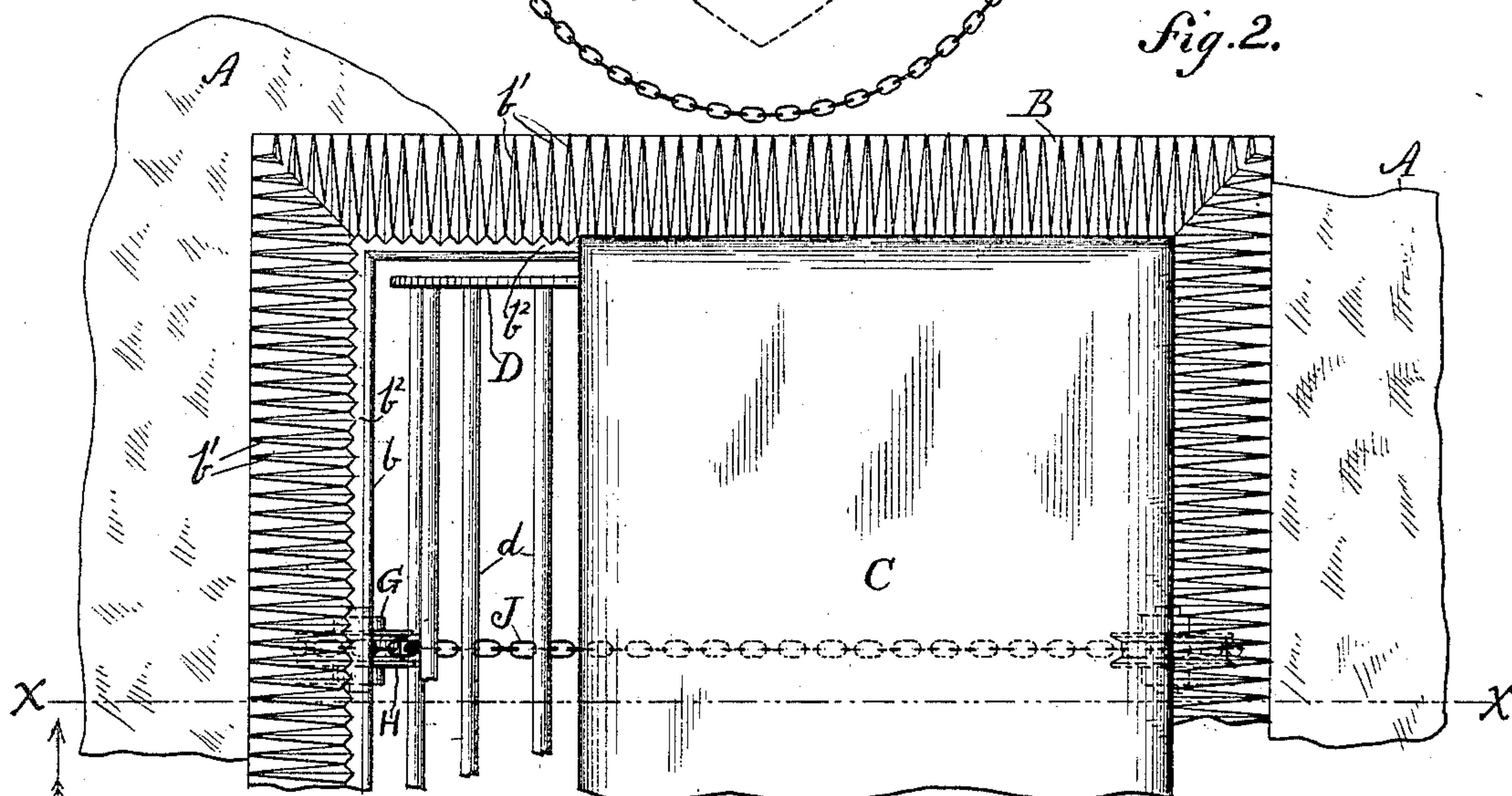
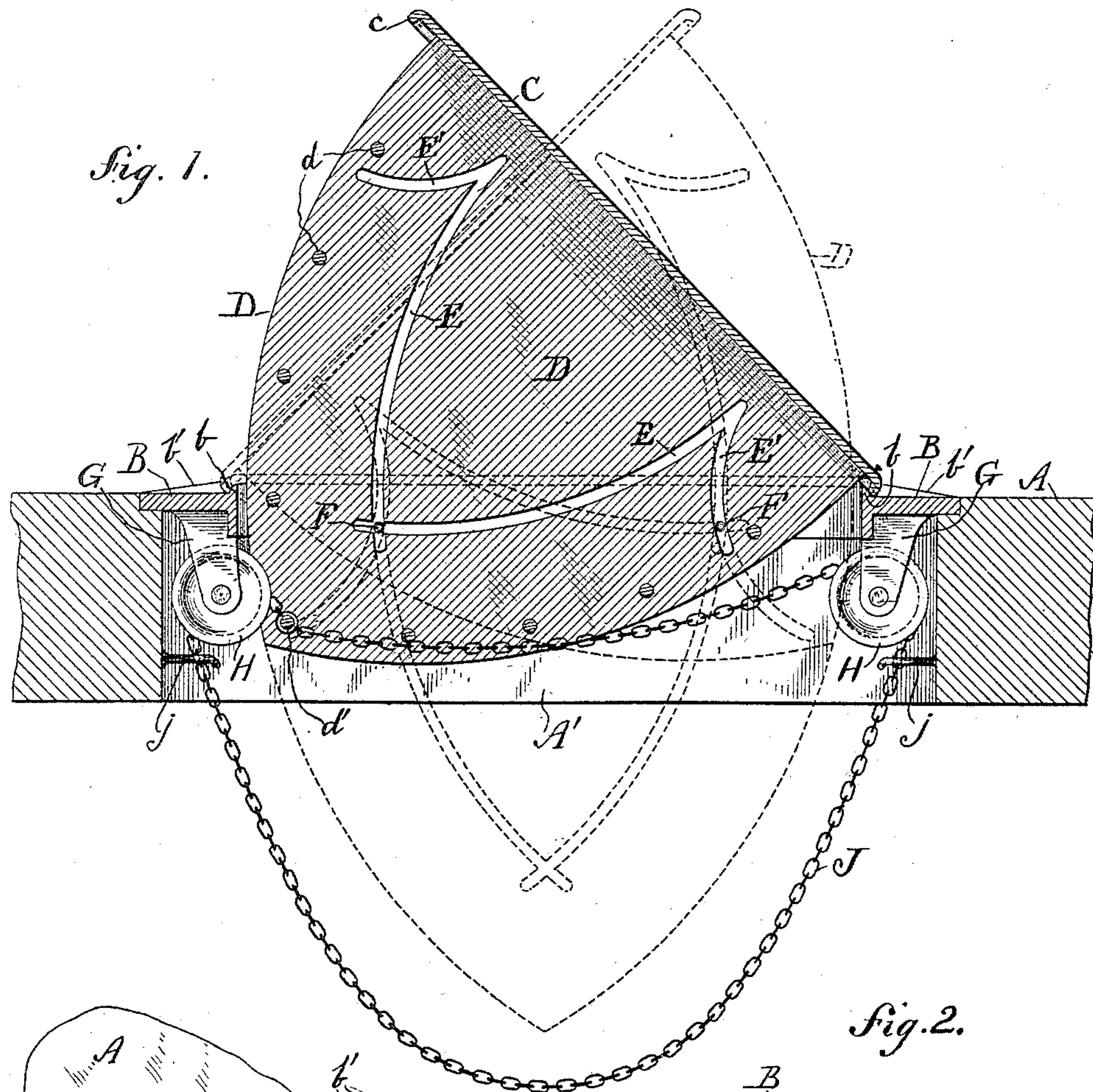
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E. L. BROWN.

VENTILATING VAULT COVER.

No. 339,138.

Patented Apr. 6, 1886.



Witnesses.  
Saml B. Dover.  
Arthur Kollman

Inventor.  
Edwin Lee Brown  
By Gridley & Fletcher  
Atty's.



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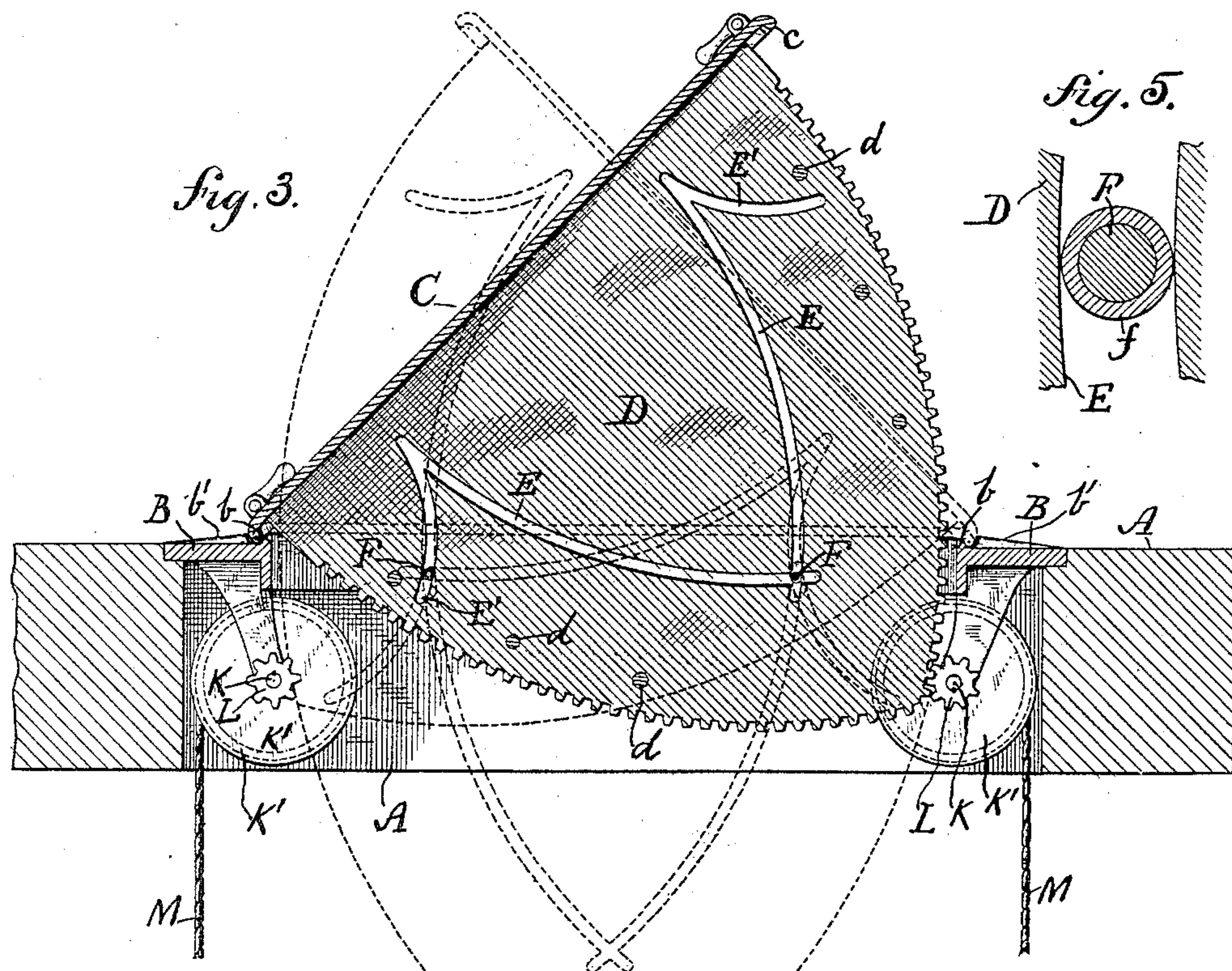
2 Sheets—Sheet 2.

E. L. BROWN.

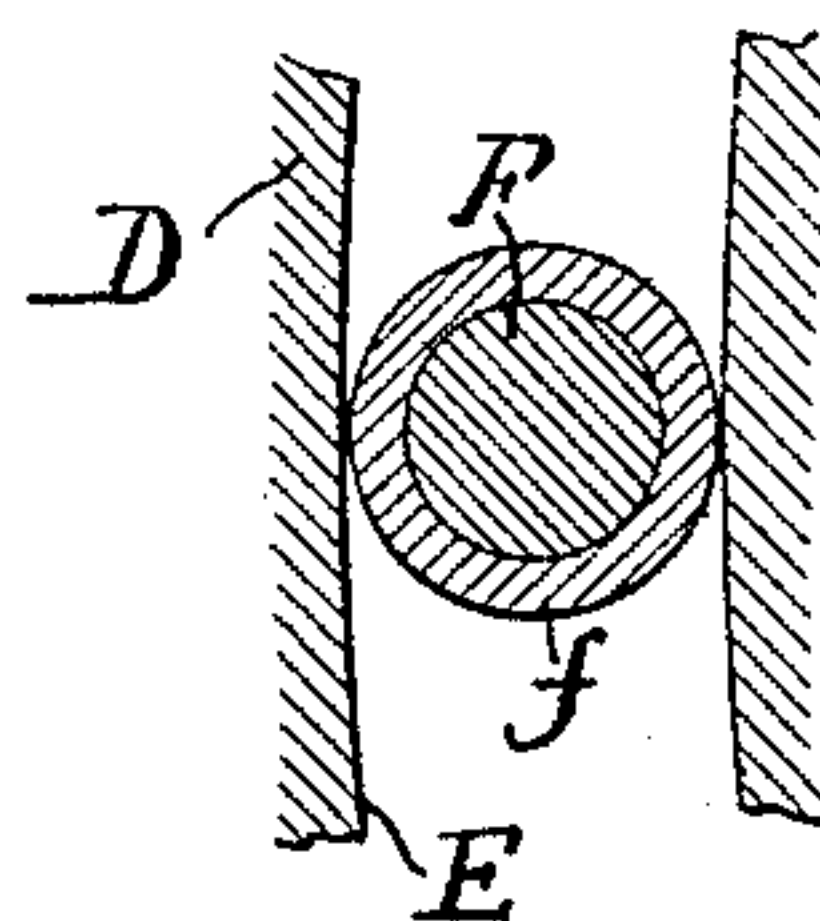
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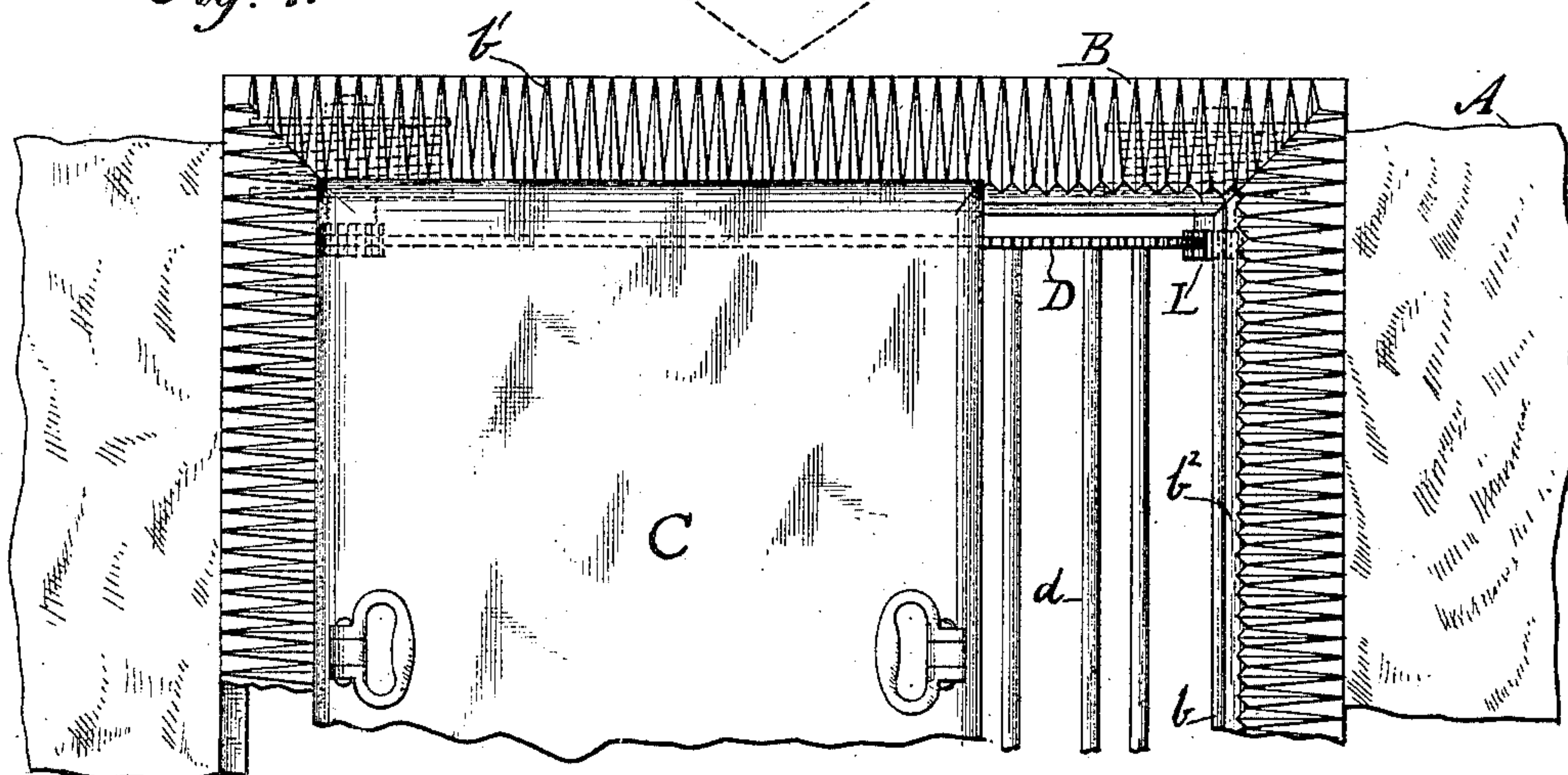
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*Fig. 5.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

EDWIN LEE BROWN, OF CHICAGO, ILLINOIS.

## VENTILATING VAULT-COVER.

SPECIFICATION forming part of Letters Patent No. 339,138, dated April 6, 1886.

Application filed August 10, 1885. Serial No. 173,936. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN LEE BROWN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilating Vault-Covers, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of said cover upon the line *x x*, Fig. 2. Fig. 2 is a plan view thereof. Fig. 3 is a like sectional view showing a modification of said construction. Fig. 4 is a plan view of said modification; and Fig. 5 is a detached sectional view, in detail, of one of the frictional rollers or guides and a portion of the slot in which the same bears.

Like letters of reference designate corresponding parts.

The purpose of my invention is to provide a reversible or adjustable ventilating vault-cover which may be operated either from above or beneath, may be raised from either side, according to the direction from which the wind may blow, and, when so raised, may form a ventilating cowl or hood for directing the air-currents into said vault or cellar, while at the same time it may serve, preferably, to prevent access to said cellar from without.

A further object is to dispense with the use of the ordinary hinges, and to provide means whereby said cover may be accurately guided and controlled during its movement from one side to the other. Again, I purpose to so form the frame of said cover that suitable grooves or bearings may be provided therein for the reception of the pivotal or hinged portion of the cover, said bearing being constructed in a manner to drain the water therefrom or prevent it from standing, while portions of said frame may be inclined to or toward the top surface of said cover, to prevent stumbling against the latter. Moreover, I desire to provide a novel means for operating said cover from beneath, all of which said several improvements are hereinafter more specifically described, and enumerated in the claims.

A in the drawings represents a sidewalk, provided with the usual vault-opening, A', within which is secured in any well-known way a frame, B, the main portion of which is in the same plane with the surface of the

walk, and is provided with an upwardly-turned flange, *b*, upon its inner edge, which serves to prevent the water from entering the opening, as well as to retain the cover in place, as hereinafter stated.

Around the entire frame B, commencing at the outer edge and directed inwardly until they nearly reach the flange *b*, I place a series of detached projections, *b'*, preferably of a triangular shape, which are inclined upwardly from said outer edge to a height at or about that of the upper surface of the cover, as clearly shown in the drawings. This arrangement, in effect, leaves a groove or channel, *b''*, for the reception of the depending flange of the cover, and forms an incline to prevent stumbling against said cover, while it permits the water to run off between the parts *b'*.

C represents a cover, consisting of the usual metal plate provided with a depending flange, *c*, arranged to fit over the flange *b* of the frame and to rest in the groove or gutter *b''*. Upon the respective ends of said plate, and rigidly attached thereto, I provide depending sectoral or shield-shaped flanges D D, which are preferably connected with each other by means of a series of bars, *d*, rigidly attached thereto, which serve both to brace the flanges or wings D D and to guard the entrance to the vault when the cover is open.

Concentric with the arcs of the circles respectively describing the edges of the wings or flanges D, I provide slots E E in each of said flanges, which said slots intersect each other at or near the lower ends, and from the tops of which are continued downwardly and outwardly diverging branches E' E', as shown.

Upon the inside of the frame B, at either end thereof, in the positions substantially as shown, I place projecting studs F F, Figs. 1 and 3, (an enlarged detail view of which is likewise shown in Fig. 5,) which studs respectively project into the slots E E, and are provided with friction-rollers *f*, Fig. 5.

Cast upon the under side of the frame B, and depending therefrom at either side and midway between the ends, are lugs G G, Figs. 1 and 2, to which are attached loose pulleys H H, over which is trained an endless chain, J, which chain is permanently secured to the central or lowermost bar, *d'*, Fig. 1.

Forked hooks *j j*, or any well-known means,



may be employed for locking said chain at any desired point.

Figs. 3 and 4 show a modification of the construction illustrated in Figs. 1 and 2 for the purpose of operating said cover. In lieu of the chain J and its pulleys, I place shafts K K, Fig. 3, upon either side of the opening A', and lengthwise thereof, said shafts being provided with pulleys K' K' upon one end thereof, as indicated in dotted lines in Fig. 4, and with pinions L L—two upon each shaft—adapted, respectively, and so placed as to engage segmental racks upon the periphery of the plates D D, as clearly shown in Fig. 3. A rope, M, is trained over the pulleys K' K', and upon pulling the same in one or the other direction the pinions upon the side upon which the rope is pulled engage the racks upon that side and raise the cover, which is in turn lowered by a reverse movement, the studs F in the slots E E serving to guide said movement in either direction, so that the flange b upon one or the other side, as the case may be, may bear in the groove b' and perform the office of a hinge. It will be observed by reference to Fig. 3 that as soon as the pinions upon one side are turned to raise the cover the effect of said movement, in connection with the joint action of the slots E and E' with the studs F, is to withdraw the cogs of the rack from the pinions of the opposite shaft and permit said cover to be raised, said last-mentioned rack and pinions again engaging as soon as the cover is lowered.

A pawl and ratchet upon each of the shafts K may serve to sustain said cover when raised.

The advantages of said reversible cover are, that the vault may always be ventilated by raising the side of the cover in the direction from which the wind is blowing, (which in cities must be either up or down the street,) and when so raised may form a hood or cowl to conduct an air-current into the vault below, while the bars d prevent access thereto, and the studs also prevent said cover from being displaced, while serving, in connection with the slots E and E', to guide the movement of said cover, the respective positions of

the cover and slots with respect to said studs when the cover is moved being indicated in dotted lines in Figs. 1 and 3.

The slots E' E' upon the respective sides of the flanges D D, in conjunction with the roller-studs F F and the depending flanges c and grooves b', form hinges, whereby said cover may be prevented from displacement, and alternately raised from one or the other side. As such hinges, together with the projections b', are applicable to other vault-covers and for other purposes, I do not claim them, broadly, herein, as it is my purpose to make them the subject of a separate application to be filed herewith.

Having thus described my invention, I claim as new—

1. A reversible ventilating vault-cover provided with depending flanges, whereby a hood or cowl may be formed thereof, upon which ever side the same may be opened, substantially as described.

2. A reversible ventilating vault-cover provided with depending flanges having curved slots concentric with the hinge-bearings of the cover, and arranged to engage with stationary guiding-studs or friction-rollers attached to the frame, substantially as and for the purposes set forth.

3. The combination, with a reversible vault-cover, of depending flanges, slotted as described, and stationary guide-studs F, substantially as and for the purposes set forth.

4. A reversible vault-cover having depending shield-shaped flanges D D, provided with slots E E E' E', studs F F, and bars d, substantially as and for the purposes specified.

5. The combination, with a reversible vault-cover provided with depending flanges and one or more cross-bars, d, of a chain or rope connected therewith and trained over pulleys upon the respective sides of the vault-opening, substantially as described.

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Witnesses:

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