2 Sheets—Sheet 1.

E. P. HOYT.

Vault-Cover.

No. 205,866. **Patented July 9, 1878.**

Fig. 1.

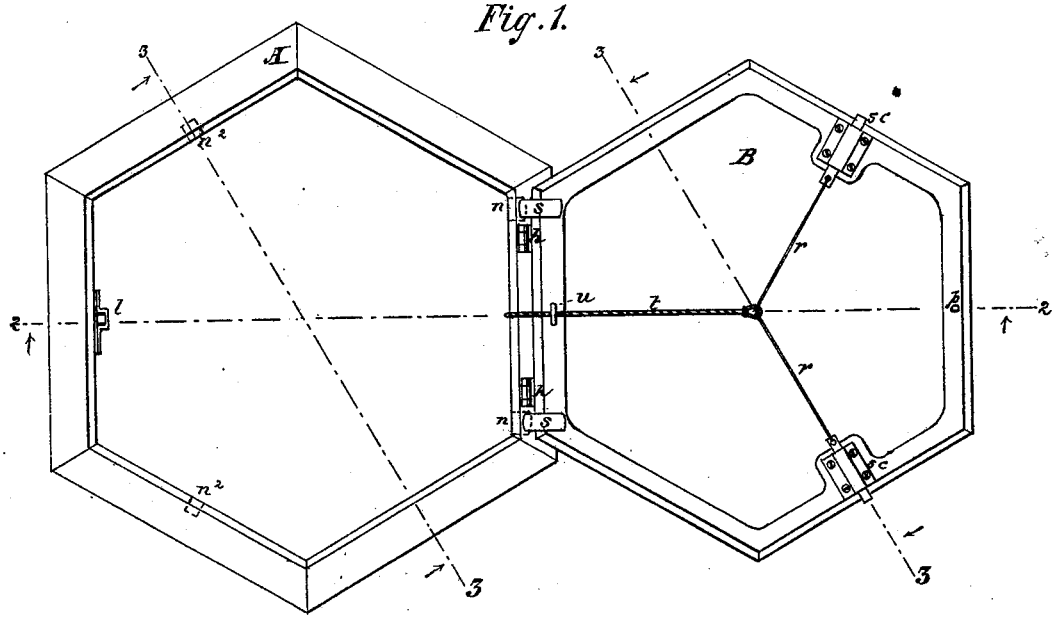


Fig. 2.

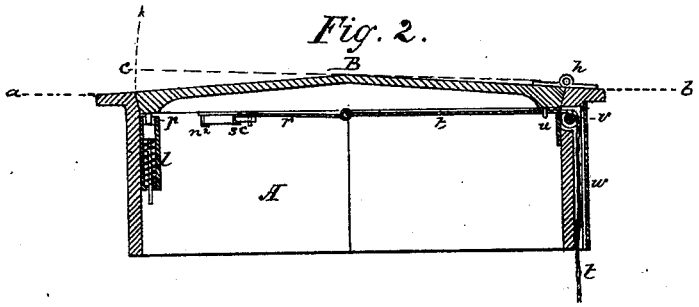
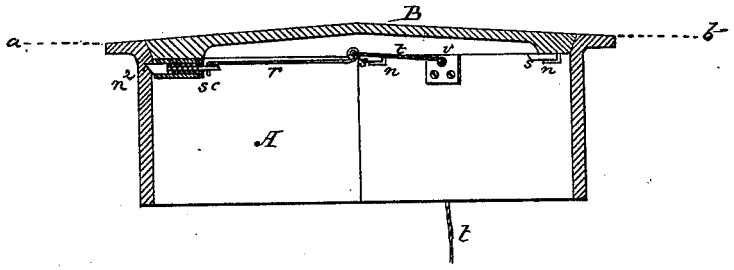


Fig. 3.



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2 Sheets—Sheet 2.

E. P. HOYT.

Vault-Cover.

No. 205,866. Patented July 9, 1878

Fig. 4.

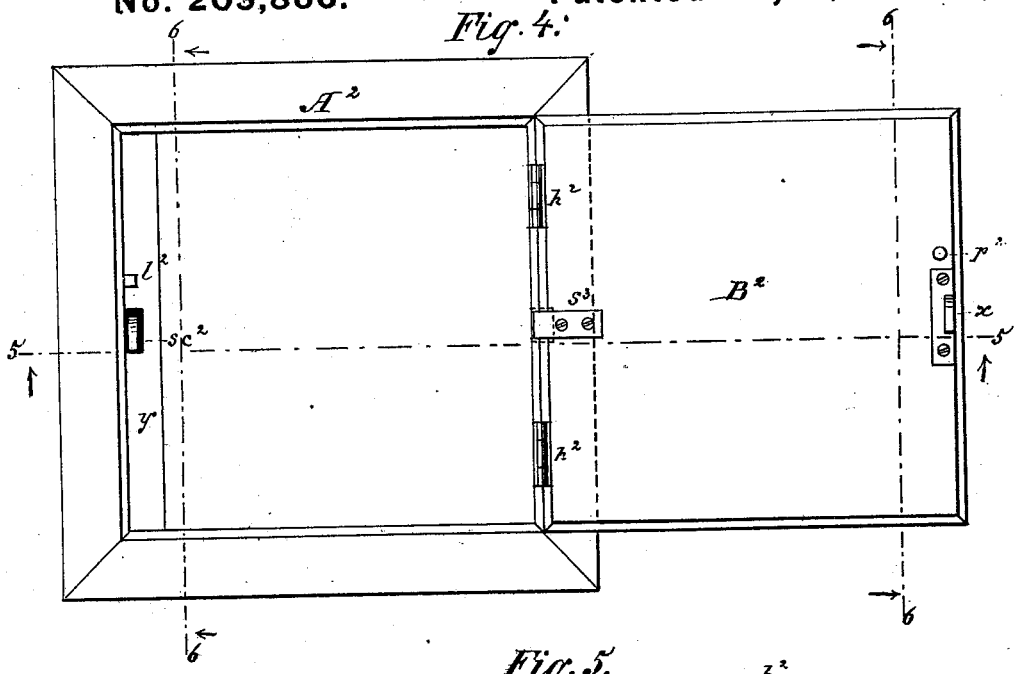


Fig. 5.

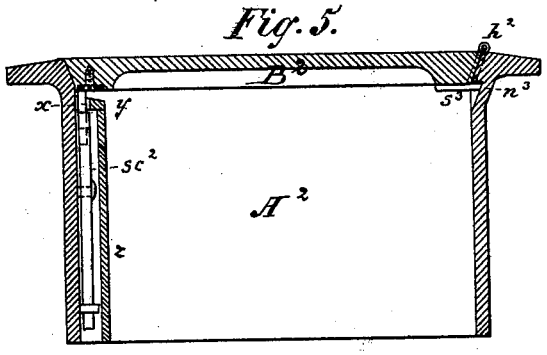
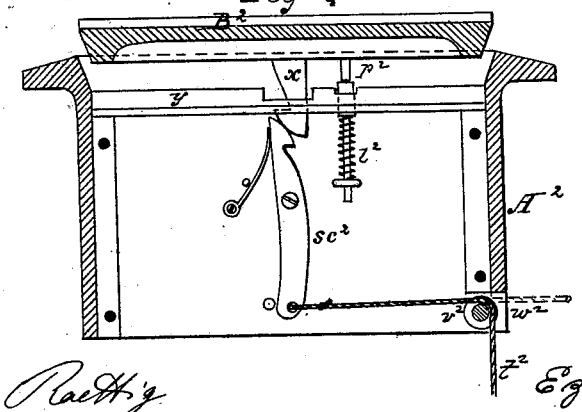


Fig. 6.



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UNITED STATES PATENT OFFICE.

EZRA P. HOYT, OF NEW YORK, N. Y.

IMPROVEMENT IN VAULT-COVERS.

Specification forming part of Letters Patent No. **205,866**, dated July 9, 1878; application filed June 22, 1878.

To all whom it may concern:

Be it known that I, EZRA P. HOYT, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Vault-Covers, of which the following is a full, clear, and exact specification:

This invention relates exclusively to coal-hole covers and other vault-covers of a like description; and it relates to those vault-covers which have iron curbs, to which they are hinged.

The first part of the said invention has for its object additional security; and consists in the employment of a hinged cover having one or more safety projections or rigid catches at or near its hinge-edge, in combination with sockets in the curb to receive said catches, and one or more spring-catches, appropriately arranged, all beneath the cover. The hinges, which are necessarily exposed, are thus rendered not essential to security, as the cover is held in place independently of the hinges.

The second part of the said invention consists in the employment of a tripping cord or chain and one or more spring-lifters, in combination with the said hinged cover and spring-catches, said lifter or lifters being arranged opposite the hinges, and adapted to elevate the released cover, for greater convenience and additional safety. The cover is locked down by stepping on it, and the proprietor of a house may thus quickly test the vault-covers before retiring, while the elevation of an unlocked cover will attract attention to it, besides enabling the proper person to readily lift it.

Figure 1 of the accompanying drawing is a plan view of a sexagonal vault-cover and its curb, illustrating this invention, the cover being shown open; and Figs. 2 and 3 are vertical sections on the lines correspondingly numbered in Fig. 1, showing the said cover closed.

Fig. 4 is a plan view of a square vault-cover, illustrating certain modifications. Fig. 5 is a vertical section on the line 5 5, Fig. 4; and Fig. 6 is a vertical section on the lines 6 6, Fig. 4. This cover is shown wide open in Fig. 4, locked in Fig. 5, and unlocked in Fig. 6, and the spring-catch and spring-lifter are exposed in the last figure.

In providing a coal-hole, for example, with a sexagonal cover, as illustrated in Figs. 1, 2, 3, an iron curb, A, of the desired dimensions, is secured within the hole, with its marginal edges flush with the surface of the sidewalk, as represented by the dotted lines *a b* in Figs. 2 and 3.

An iron cover, B, is attached to the curb A at one edge by hinges *h h*, and is adapted to close flush within the seat of the curb, as shown in Figs. 2 and 3, its edges being beveled and supported by like bevels in the curb. This forms a tight joint, and precludes prying up the cover, while it also forms no place for coal-dust to lodge.

The upper surface of the curb is beveled outward, so as to shed water; and if additional security against leaking is desired a packing of rubber or leather may be applied within a groove in the beveled edges of the cover.

Beneath the cover a pair of safety-projections or rigid catches, *s s*, at or near the hinge-edge, engage with notches or sockets *n n* in the curb. A pair of spring-locking catches, *sc sc*, engage with other notches, n^2 n^2, and a spring-lifter, *l*, opposite the hinges, tends to elevate the cover to the position indicated by the dotted line *c* in Fig. 2, and to support it in this position.

The safety-projections *s* are intended to be cast on or otherwise attached at the hinge-edge of the cover, or on the adjoining edges near the hinge-edge.

The spring-catches *sc* may be of brass or iron, and attached by screws or otherwise. They occupy the edges adjoining the lifter-edge, are intended to be radial, or nearly radial, and consist of sliding bolts, spiral projecting springs embracing the shanks of said bolts and light housings, the respective ends of each bolt being beveled to engage with the seat-bevel of the curb, and perforated for the attachment of one of a pair of light connecting rods or wires, *r r*. The latter are formed into loops at or behind the center of the cover, and a tripping cord or chain, *t*, extends from

these loops through a guide eye or staple, u, on the hinge-edge of the cover, and through the face-plate of a guide-pulley or sheave, r, over said pulley, and through a passage, w, formed at the back of the curb, down into the vault or cellar. Said sheave r is attached within an opening in the curb, and the position and size of its opening preclude the entrance of any obstruction.

To prevent any lodgment of coal-dust in the notches n n^2, they are each beveled downward at bottom, as represented.

The spring-lifter l in the form represented may be of iron or brass, and consists of a vertical bolt, a spiral projecting spring embracing said bolt, and a light housing, the latter attached by screws to the inner surface of the curb at front. It has been made with a bolt stopping flush with its housing, and engaged by a stud-pin, p, projecting from the bottom of the cover.

When the spring-catches sc sc are tripped by means of the cord or chain t, the spring-lifter l, acting on the stud-pin p, immediately elevates the cover, so that when the strain on the tripping cord or chain is relaxed the bolts of the spring-catches will engage with the seat-bevel of the curb, and not with their notches. The springs of the locking-catches are thus made to assist that of the lifter.

The cover being supported in unlocked position, as represented by the dotted line c in Fig. 2, the person who unlocked it in the cellar can pass to the sidewalk, if preferred, before throwing the cover wide open, as represented in Fig. 1, while, to close and lock the cover, all that is necessary is to drop it, or, having dropped it, to step on it, so as to force down the lifter. The spring-catches will then automatically fasten it.

A square vault-cover is represented in Figs. 4, 5, 6, the same consisting of a curb, A^2, and a cover proper, B^2, both of iron, permanently united by a pair of hinges, h^2 h^2, at one edge of the cover, and provided with a safety projection or rigid catch, s^3, on the hinge-edge of the cover, engaging with a socket or notch, n^3, in the curb, and a spring-catch, sc^2, and a spring-lifter, l^2, at the opposite edge of the cover, these several parts performing the functions, respectively, of the parts of like names already described.

The cover is also made with beveled edges, and adapted to close flush within the top of the curb. This feature, however, is not essential.

The safety-projection s^3 and socket n^3 are precisely like the projections s and notches n, and the spring-lifter l^2 is essentially like the lifter l, being engaged by a stud-pin, p^2, projecting from the cover; but the details of the construction of these parts must not be considered essential to this invention.

The lifter may, in some cases, engage directly with the cover proper without the interposition of a stud-pin; and it may also be like any of the well-known forms of spring-lifters for other purposes.

The general form of lifter represented is preferred; but I propose to form its housing by means of a cored or drilled projection on the inside of the curb; and the housings of the spring-catches sc sc may also be formed on the cover in this manner. I also propose using two or more lifters when this is desirable.

The spring-catch sc^2 illustrates the employment of catches of differing forms performing the same functions.

In the present modification a lever-catch is employed in connection with a notched counterpart, x, projecting from the cover, an appropriate fulcrum, spring, and stop, and a tripping cord or chain, t^2, attached at or near the bottom of the curb to the lever-extension of the catch, and passing horizontally to a pulley, r^2, so that it may be drawn vertically. An opening, w^2, in the side of the curb, permits the cord or chain t^2 to be drawn horizontally as well, as indicated by dotted lines in Fig. 6.

A supplemental sheave may be employed to provide for drawing the cord or chain t horizontally also.

The spring-catch sc^2 and spring-lifter l^2 are inclosed in this modification by a slotted cap-piece, y, and a vertical face-plate, z, attached to the front wall of the curb inside. The housing thus formed is open at bottom, so that coal-dust, &c., obtaining access thereto may find no lodgment, and its top is beveled, so that nothing can lodge thereon.

I propose using either of the forms of cover and curb above described, or any known form to which the invention is applicable, with the cover roughened or illuminated in any preferred style.

I am aware that a certain expired patent describes a ventilating-cover for vaults, with a central spring to elevate the cover vertically to the desired height, and spring-catches used in connection with notched guide-rods to fasten the cover down.

My spring catches and lifters are applied to hinged vault-covers exclusively, and in an essentially different way, being designed, respectively, to secure the cover at one or two points opposite the hinges, and to assist in unlocking the same in the peculiar manner above specified.

The following is what I claim as new and of my own invention, and desire to secure by Letters Patent, namely:

1. A vault-cover hinged at one edge to a curb, and constructed with one or more safety projections or rigid catches at or near its hinge-edge, engaging with sockets or notches in the curb, in combination with one or more spring-catches opposite, or nearly opposite,

said rigid catches, for locking the cover in its seat.

2. The combination of a curb, a cover, hinges at one edge of said cover, one or more spring-catches opposite, or nearly opposite, said hinges, a cord or chain for tripping said catch or catches, and one or more spring-lifters opposite said hinges for elevating the released cover sufficiently to keep it unlocked, substantially as herein shown and described.

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Witnesses:

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