E. P. HOYT.

Vault Cover and Ventilator.

No. 196,229. Patented Oct. 16, 1877.

Fig. 1.

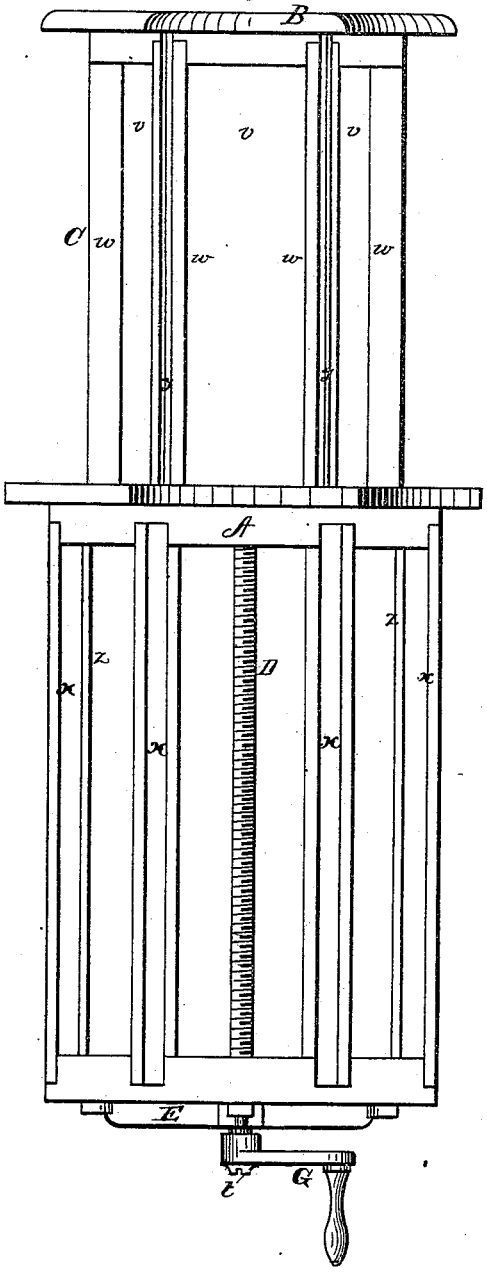


Fig. 2.

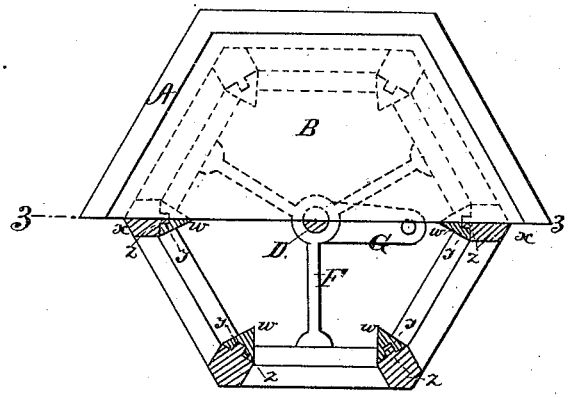
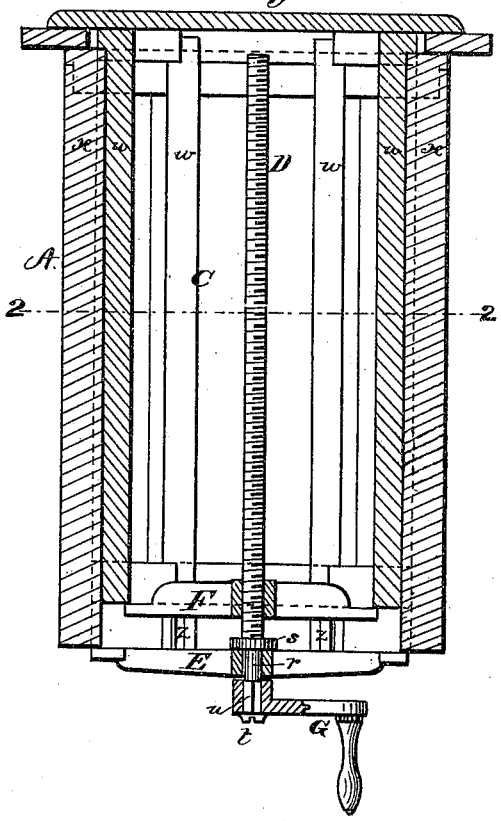


Fig. 3.



Witnesses.

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

IMPROVEMENT IN VAULT COVERS AND VENTILATORS.

Specification forming part of Letters Patent No. **196,229**, dated October 16, 1877; application filed September 7, 1877.

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 and Ventilators, of which the following is a full, clear, and exact description.

This invention relates to means for operating and securing what are known as "vault-covers," and to means for utilizing the uncovered vault-holes for ventilating purposes during the day.

The present invention consists in a combined vault cover and ventilator formed by attaching to the bottom of the cover a ventilating-cage having apertures either entirely open or guarded by suitable screens, the same being adapted to slide vertically, and operated by an axial-swiveled screw, which serves to raise or lower the cover and cage at will to any desired extent, and to support the same automatically where they are stopped, and also to securely lock the cover down when the vault is closed.

Figure 1 of the accompanying drawing is an elevation of a combined vault cover and ventilator open, illustrating this invention. Fig. 2 is a plan view of the same closed, one-half being shown in section. Fig. 3 is a vertical section of the closed cover and ventilator on the line 3 3, Fig. 2. The plane of the section in Fig. 2 is indicated by the line 2 2, Fig. 3.

Like letters of reference indicate corresponding parts in the several figures.

This improved vault cover and ventilator is designed for use within vault-holes in the sidewalks of cities and in other similar surfaces.

The new device is a substitute for the ordinary styles of vault-covers with their elevating and locking devices, and also for the portable wooden cages or screens now used for admitting light and air, or for the escape of foul air through vault-holes without leaving the same wholly unguarded.

An outer frame or curb, A, forming the stationary part of the device, is intended to be built in a vault-hole, or subsequently inserted and secured in any approved way. The horizontal ring or flange at the top of the curb may be sunk flush with the surrounding surface, if this be the surface of a footwalk, and the curb will usually be contained within the vault-hole, so as not to project downward into the vault. The walls of the curb may be open, as represented, or solid, as preferred, and the shape of the curb in horizontal section, as shown in Fig. 2, is not essential.

A cover, B, of any approved description is fitted to the top of the curb A, and the ordinary marginal flanges and recesses, or overlapping flanges, or a flange on the top of the curb and a matching rubber gasket within a groove in the cover, or any other suitable device, may be employed to render the vault-hole sufficiently weather-tight when closed.

Attached to the bottom of the cover B, or formed thereon, is an inner frame or cage, C, fitting within the curb A, so as to slide vertically therein, and so as to be wholly inclosed within the curb when it is lowered. Tongues and grooves *z y* form parallel vertical guides, and provide for lubricating the frictional surfaces. The tongues and grooves have been located, respectively, on the longitudinal ribs *x* of the open-sided curb, and in the corresponding ribs *w* of the cage; but they may obviously be transposed, if preferred, or increased or diminished in number, without materially changing their effect; and in a sexagonal ventilator, (the form represented,) or one of any other angular shape, the special guides may be wholly omitted.

In a cylindrical ventilator one or more tongues and grooves, or their equivalent, would be essential, with the preferred form of operating mechanism, to render the cover and cage non-rotary.

The illustrative ventilating-cage C has six large apertures, *v*. These may receive screening-panels, of wire-cloth, for example, if desired, and the cage can thus be made to exclude insects even while permitting the passage of air and light. The employment of the ordinary inclined slats within the apertures of the ventilating-cage has also been contemplated, and other styles of screen may be adopted.

For operating the cover and ventilating-cage a central vertical screw, D, is swiveled at its lower end in the hub of a skeleton frame or spider, E, attached to the bottom of the curb A, and a second spider, F, is attached to

the lower end of the cage C, and forms a nut, in which the threaded portion of the screw works. A square, *u*, at the lower extremity of the screw D receives a hand-crank, G, which is held in place by a set-screw, *t*, and forms, with an upper fixed collar, *s*, and an intermediate wrist, *r*, the swivel of the screw D. The nut-spider F being non-rotary with the cage C, it is only necessary to rotate the screw D in order to raise or lower the cover and cage to any desired extent, and the screw, with its appurtenances, supports the cover and cage automatically where they are stopped. Moreover, when the cover is drawn down upon its seat, as in Fig. 3, the screw forms a most effective clamp and automatic lock, which cannot possibly be manipulated from outside. A rotary screw, attached at its upper end by a swivel-spider to the lower end of the ventilating-cage, and working through a nut-spider attached to the lower end of the curb, would produce the same results, so far as above specified, but would be inferior, in that it would project down into the vault when the cover is lowered. Other mechanical devices may also be used to operate, support, and lock the cover and cage without departing from the first part of this invention; but any such device now known to me is considered inferior to the simple, effective, and compact screw mechanism above described.

All the parts of the combined vault cover and ventilator are intended to be made of iron castings, those for the frames to be either sectional or whole; but the frames may be of wood, if preferred, and any other suitable materials may be used, the parts to be securely united in any appropriate way.

In use, when the ventilator is open the air passes freely through the apertures of the ventilating-cage C and between the limbs of the spiders E F.

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

A combined vault cover and ventilator, consisting of a fixed outer frame or curb, A, a cover, B, adapted to close upon the top of said curb, a ventilating-cage, C, formed on or attached to the bottom of said cover, and adapted to slide vertically within said curb, and an axial rotary screw, D, connected to said curb and cage, respectively, by a swivel-spider, E, and a nut-spider, F, said screw serving to raise and lower the cover and ventilating-cage, and to support the same automatically at different heights, and also to securely lock the same when closed, as herein set forth.

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Witnesses:

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