

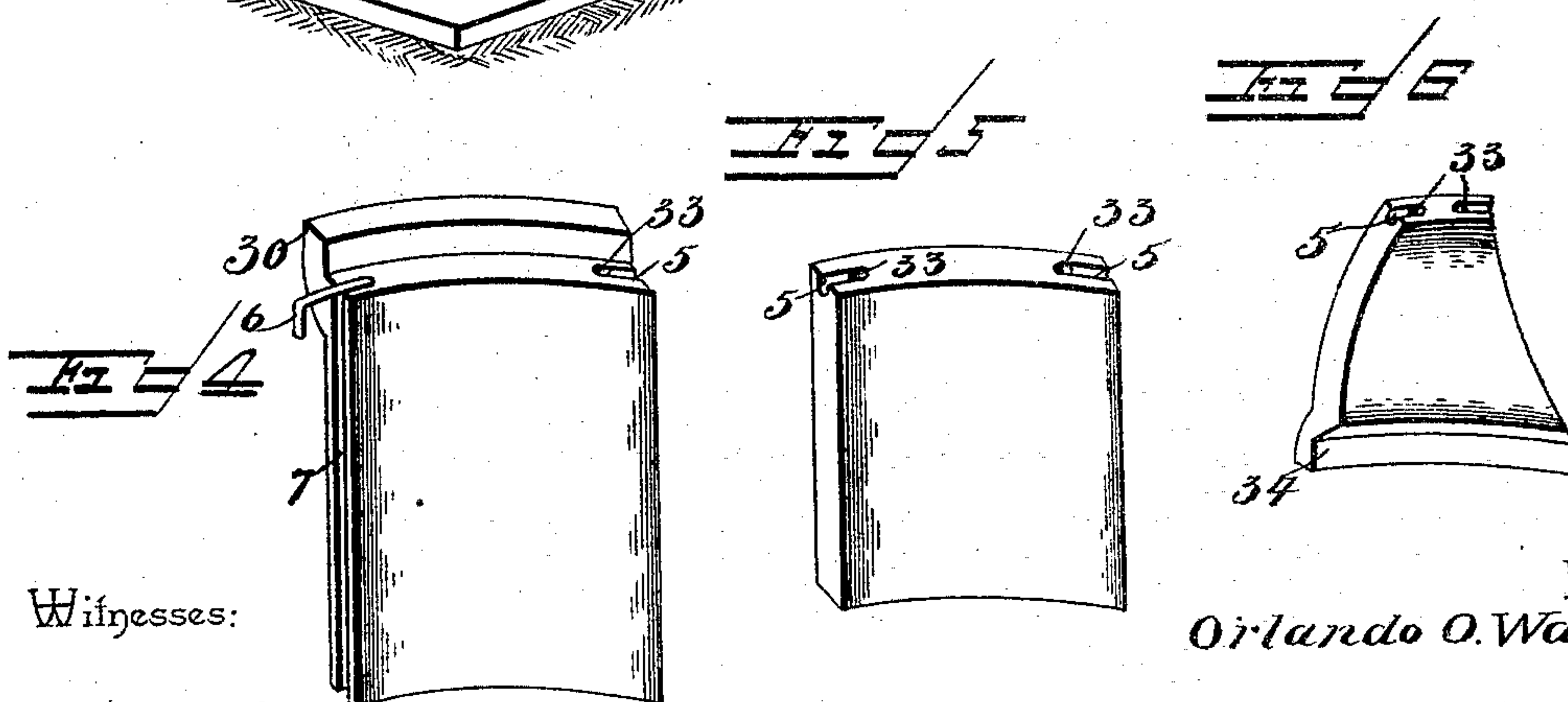
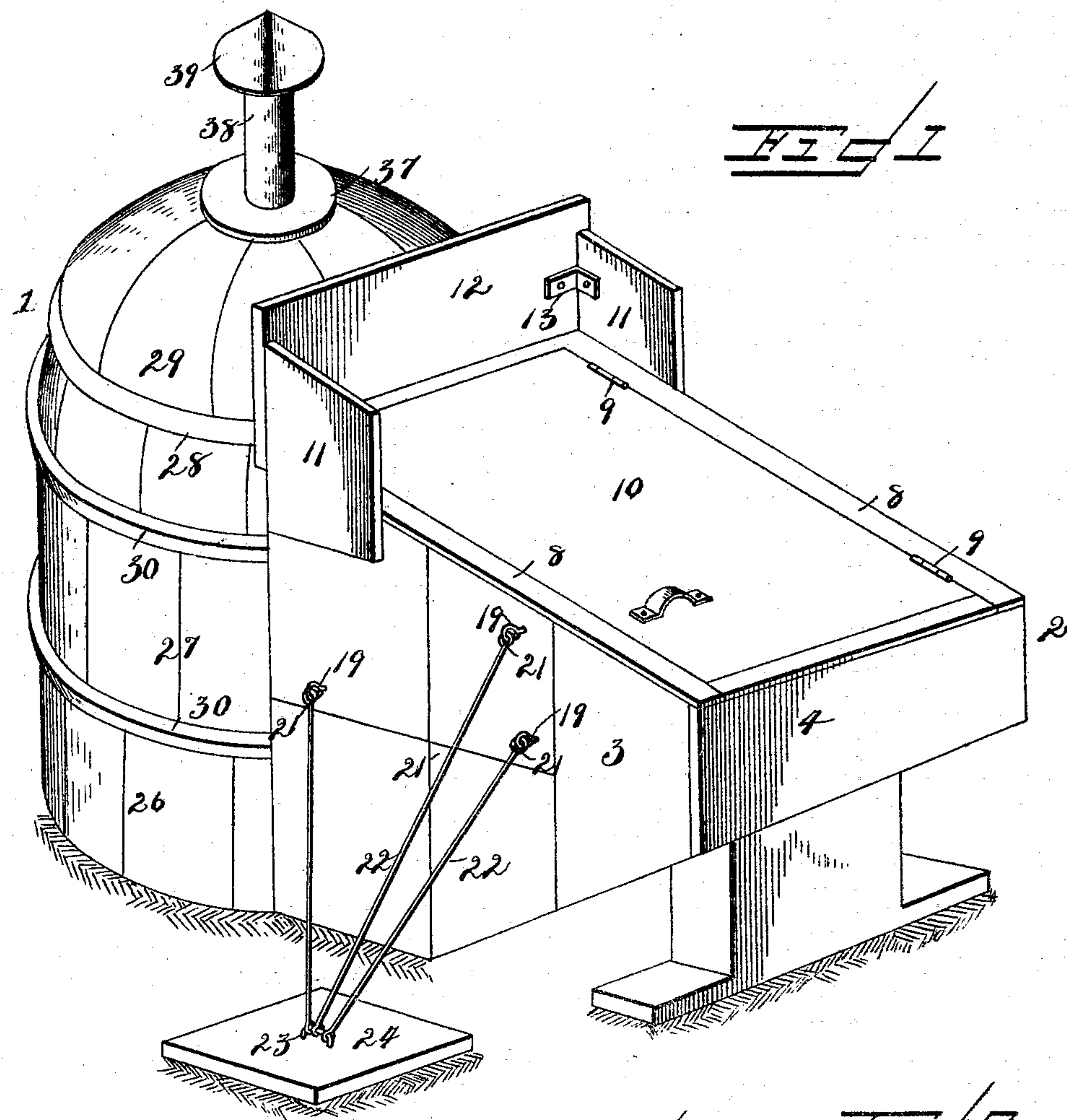
(No Model.)

2 Sheets—Sheet 1.

O. O. WALKER.
CYCLONE CAVE.

No. 503,689.

Patented Aug. 22, 1893.



Witnesses:

Inventor

Orlando O. Walker.

W. E. Schneider
W. S. Duwall.

By *his* Attorneys,

Chas. W. Co.

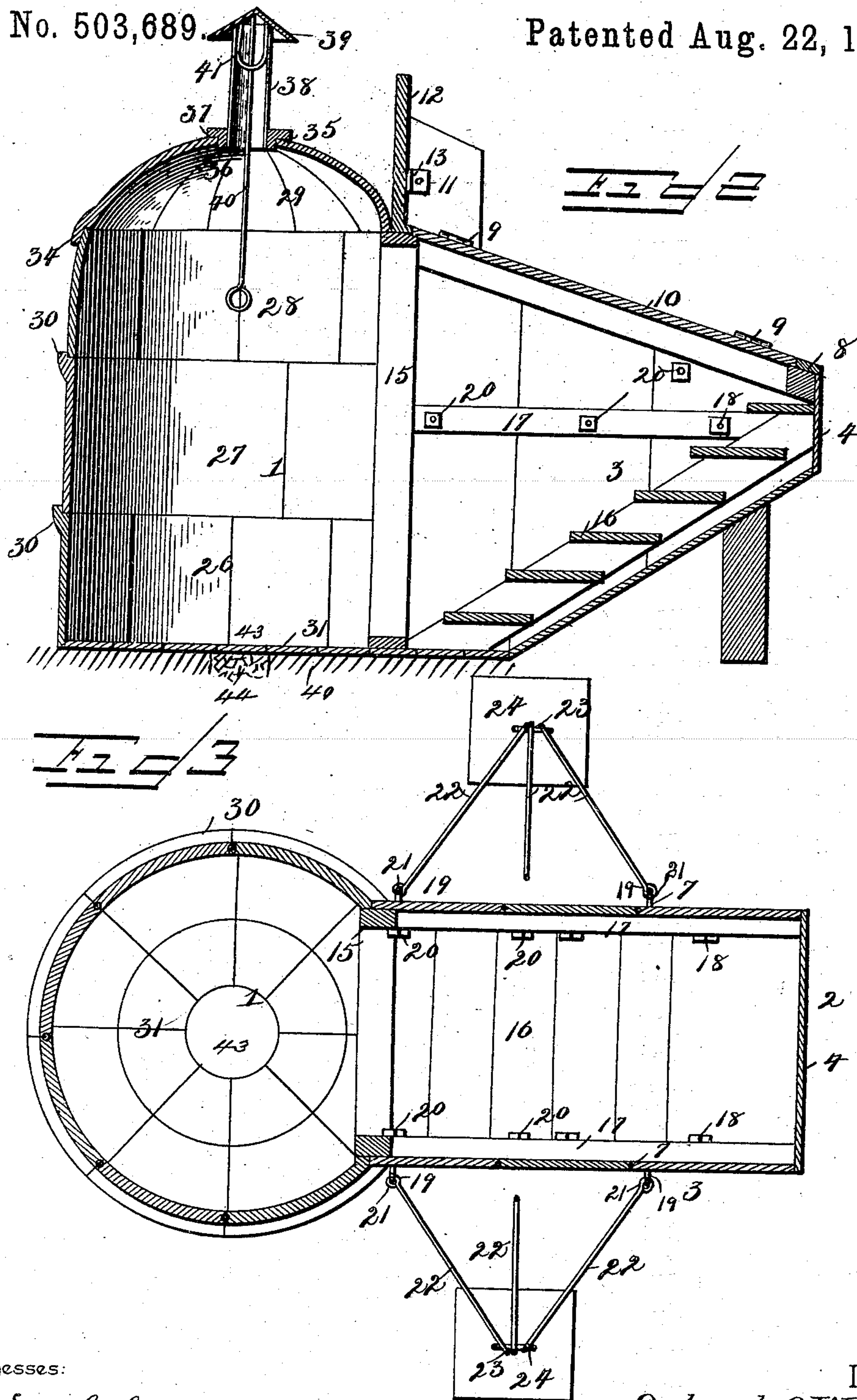
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By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ORLANDO OWEN WALKER, OF BEDFORD, IOWA, ASSIGNOR OF TWO-THIRDS
TO R. G. MOON AND C. S. McCLOUD, OF SAME PLACE.

CYCLONE-CAVE.

SPECIFICATION forming part of Letters Patent No. 503,689, dated August 22, 1893.

Application filed March 27, 1893. Serial No. 467,832. (No model.)

To all whom it may concern:

Be it known that I, ORLANDO OWEN WALKER, a citizen of the United States, residing at Bedford, in the county of Taylor and State of Iowa, have invented a new and useful Cyclone-Cave, of which the following is a specification.

My invention relates to improvements in cyclone-caves or subterraneous cellars; the objects in view being to provide a retreat of this class which shall be water or moisture-proof as well as proof against all burrowing animals; which shall be snug and safe, strong and durable; and provided with a ventilating means controlled by the person or persons occupying the same.

With these and various other objects in view the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a cyclone-cave constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a horizontal sectional view. Fig. 4 is a detail in perspective of one of the main tiling-sections. Fig. 5 is a similar view of one of the intermediate tiling-sections. Fig. 6 is a similar view of one of the dome tiling-sections.

Like numerals of reference indicate like parts in all the figures of the drawings.

The cave consists of two principal parts, the cave proper, designated as 1; and the cellar-way, designated as 2; the latter being provided with the steps to give ingress and egress to and from the cave.

In constructing the cellar-way I employ a series of vertical slabs 3, the same being set edge to edge and having their upper and lower edges inclined, the shortest slabs being toward the outer ends of the series. These slabs are connected at their front ends by a transverse slab 4. The slabs 3 and 4 have their upper ends adjacent to their side edges provided with sockets 5, and inverted U-shaped keys 6 have their terminals let into the sockets and serve as securing-devices for keying the slabs together. These keys are fastened in position by means of cement, lead, or other agent.

The side edges of the slabs 3 and 4 are provided with vertical grooves 7, and into these grooves, which as shown, meet, is poured liquid cement, whereby a water-tight joint is formed between the slabs. A door-frame 8, surmounts the slabs, and to this is hinged, as at 9, a door 10, adapted to open outward.

Vertical guard-slabs 11, are secured to the side-walls of the cellar, and the same are connected above said side-walls by a transverse guard-slab 12, metal angle-plates 13, serving as a means for securing these slabs 11 and 12 together. These slabs rising above the door are designed to prevent loose earth and other debris falling thereover and interfering with free ingress and egress to and from the cave.

A vertical door-frame 15, is located between the rear vertical ends of the side-walls, and from the outer end of the inclined door-frame 8 to a point near said door-frame 15 leads a flight of steps 16. Horizontal braces 17, are interposed between the upper step of the flight and the vertical sides of the door-frame 15; and bolts 18, embedded in cement are passed through the centers of the vertical slabs 3 and the horizontal braces 17. Eye-bolts 19, are passed through the vertical slabs 3 at different points, said eye-bolts in this instance being three in number and arranged to form a triangle. The bolts are provided at their inner ends with nuts 20, by which they may be made adjustable, and their outer ends or eyes are loosely connected with hooks 21 formed on the upper ends of a series of rods 22, whose opposite ends converge and are loosely engaged with the eyes of bolts 23, which pass through the centers of anchoring-plates 24, and in rear of the same are provided with nuts 25. These anchoring-plates are buried in the soil to a sufficient depth, the depth agreeing with the nature of the soil; if hard and compact it is not necessary to bury the plates to any very great depth, but otherwise, where the soil is free or soft. By an adjustment of the nuts either 20 or 25 it will be seen that the plates, through the medium of the rods, draw upon the side-walls of the cellar and serve to securely anchor the same in position.

The cave proper consists in this instance of four annular tiers of sections of tiles, and beginning with the bottom, I will indicate said sections as 26, 27, 28 and 29. The sections 26 and 27 are similar to each other, that is, they are curved and each provided upon its upper edge with an offset-flange 30. The lower edge of the lower series of sections rest upon a tiled floor 31, the tiles being arranged in a series of concentric circles, whose joints are cemented, and built upon a concrete foundation so as to render the flooring dry and impervious to any moisture. In the upper ends and near the side-edges of the sections 26, 27, 28 and 29 sockets or holes 33 are formed, and U-shaped keys are employed and have their ends cemented in the sockets for securing the sections together. The side-edges of the sections 26 and 27 are grooved, and into these liquid cement is poured, whereby tight and impervious joints are formed. The sections 28 are flangeless, but the superimposed sections 29 are provided at their lower edges with flanges 34, which overlap the upper edges of the sections 28. Both sections 28 and 29 are slightly tapered from their lower to their upper ends and the sections 29 are curved. An annular key 35, is seated in the circular opening that is left at the top of the cave after the sections have been assembled, and said key is provided with a circular opening 36, and an external flange 37, the latter overlapping the roof or dome of the cave. A pipe 38, is located in the opening of the key, and above said pipe a conical ventilating-cap 39 is supported. A rod 40, terminating in a handle, passes through the pipe and is secured to the cap, and through the medium of the same the cap may be raised and lowered so as to open the upper end of the pipe or close it more or less, and thus prevent the entrance of snow, rain and sleet or admit of a supply of fresh air. Wire-arms 41, depend from the cap and have frictional contact with the inner surface of the pipe so that the cap is adjusted at any desired elevation.

The various sections described in the construction of the device are preferably formed of tiling, and those in the dome and composing one tier are arranged in break-joint fashion with those of the adjacent tier. This of course necessitates the making of certain of the sections, namely, those adjacent to the cellar of every other tier, of half-length, and each end-section is connected to the cellar by means of L-shaped keys or bolts 43.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided a cave that will be dry and proof against moisture of any kind, which when buried in the ground will form a safe retreat in case of cyclones and one in which a thorough ventilation may be maintained, the same being under the control of the user or occupant.

In setting or laying the floor, it will be no-

ticed that the same is supported by a concrete bed 42. The tile sections are all laid about a central circular section 43, which is the last one laid, it being understood that the sections are cemented together. This central section 43 is laid directly over a hole 44 in the cement bed, into which the moisture drains during the setting of the tiles, and from which it is from time to time bailed. When finally it is desired to lay the central section and complete the floor, the hole is filled with broken pieces of brick, or other porous substance, which acts to absorb the water. The central tile is then cemented in position. The central drainage allows the tiles to set more quickly and firmly.

Having described my invention, what I claim is—

1. A cave consisting of a series of annular tiers each comprising a series of tile-sections, the upper sections of which have their edges converged toward their upper ends and provided upon their lower edges with depending flanges for overlapping the adjacent edges of the adjacent sections, the lower sections having their upper edges provided with off-set flanges for overlapping the lower ends of adjacent sections, cement fillings for the flanges, grooves formed in the meeting vertical edges of the sections, cement-fillings therefor, and inverted U-shaped keys let into openings formed in the upper edges of adjacent tiles and crossing the vertical cement-joints therein between, substantially as specified.

2. The combination with a cave having a convexed dome and formed of sections meeting at the center of the dome to form an opening, of an annular-key seated in the opening having a bore, and an external flange overlapping the dome, the pipe passing through the bore, the ventilating-cap arranged over the pipe, the operating rod depending through the pipe and connected to the dome, and friction-arms depending from the cap and engaging with the side of the pipe, substantially as specified.

3. The combination with a cave, of a stairway or cellar leading thereto, anchoring-plates at opposite sides of the stair-way, and anchoring-rods connected to the plates and to the stairway, substantially as specified.

4. The combination with a cave and a stairway or cellar leading thereto, of eye-bolts passing through the side-walls of the cellar, opposite anchoring-plates, eye-bolts passing therethrough, nuts for the eye-bolts, and anchoring-rods connecting the eye-bolts of the cellar and plates, substantially as specified.

5. The combination with a cave having an opening, of a door-frame located in the opening, opposite side-walls at the sides of the opening formed of a series of slabs, a connecting end-wall, grooves in the meeting edges of the slabs, cement-fillings for the grooves, inverted U-shaped keys let into the ends of the slabs and crossing the fillings, a door-

frame surmounting the walls, a hinged door
for the frame, stairs arranged in the cellar
thus constructed, horizontal braces between
the door-frame and stairs, bolts passing
5 through the slabs and braces, and a flooring
for the cellar, substantially as specified.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

ORLANDO OWEN WALKER.

Witnesses:

H. P. JAQUA,

WM. E. MILLER.