(No Model.)

J. N. MILEHAM.

CYCLONE REFUGE.

No. 288,354. Patented Nov. 13, 1883.

Fig. 1.

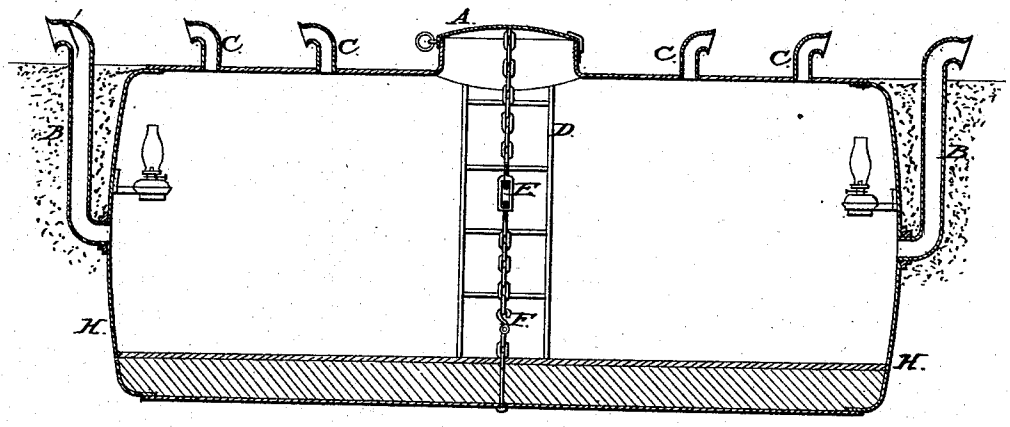
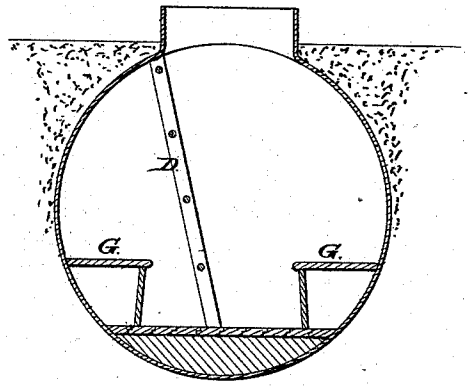


Fig. 2.



Attest:
John A. Ellis.
J. A. Murdell

Inventor:
Joseph N. Mileham
By Hubert A. Banning
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH N. MILEHAM, JERSEY CITY, NEW JERSEY.

CYCLONE-REFUGE.

SPECIFICATION forming part of Letters Patent No. 288,354, dated November 13, 1883.

Application filed September 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH N. MILEHAM, of Jersey City, county of Hudson, and State of New Jersey, have invented a certain new and useful Improvement in Cyclone-Refuges, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which my invention appertains to make, construct, and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide a safe and convenient refuge against danger from cyclones, tornadoes, storms, prairie-fires, and the like; and it consists in having a metallic chamber or receptacle of proper size and suitable construction sunk in or covered by earth and provided with means of ingress, egress, and ventilation, as hereinafter more particularly described.

In the drawings, Figure 1 is a central longitudinal section of the refuge. Fig. 2 is a central cross-section of the same.

A represents a man-hole or aperture for ingress and egress with its cover. B B C C are ventilators. D is a ladder of any suitable material. E is a threaded turn-buckle for tightening or loosening the cover by means of the chain and hook F in connection therewith. G G are seats, and H H are sides of the chamber, made of boiler-plate or sheet metal of sufficient thickness.

In the construction of this refuge the several plates are bolted or riveted together in the usual way in an excavation suitable for the purpose, and the man-hole and ventilators fixed; or, the whole structure may be first put together and then bodily placed in the excavation, the earth being in either case filled in so as to almost, if not entirely, surround the chamber, the man-hole and ventilators, of course, being exposed. I prefer the cylindrical form for the chamber as being more convenient and as resisting inward pressure from the surrounding earth more effectually; and I find a convenient size to be about twelve feet in length by about five feet in diameter; but that form or those dimensions need not, of course, be adhered to. It is also desirable to thoroughly calk and paint the chamber, so as to make it water and air tight, (with the exception of the man-hole and ventilators,) and also to preserve the same from corrosion; but this it not absolutely necessary. Any form of efficient ventilator may be used according to situation and the other circumstances of each case.

In cases of the destruction of houses by cyclones, the cellars of such houses have frequently been found unsafe by reason of falling timbers or by the house being blown away, so as to expose the cellar, and my invention is adapted by its use to obviate these dangers, and also the objections to and the difficulty of reaching caves or dugouts.

This refuge or chamber is also suitable, especially when made water-tight, for a cellar or storehouse in localities where ordinary cellars cannot be used by reason of the superabundance of water or moisture of the ground.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A metallic chamber sunk in or covered by earth, and having suitable means of ingress, egress, and ventilation, to be used as a refuge or place of safety in case of cyclones, storms, &c., substantially as described.

2. The underground cylindrical refuge or chamber constructed of plates or sheets of metal secured together, and provided with means of ingress, egress, and ventilation, substantially as herein shown and described.

3. A cyclone-refuge consisting of a metallic chamber with an opening permitting access thereto, and other suitable openings and air-conducting pipes for ventilating such chamber, substantially as shown and described.

4. As a refuge or place of safety in cyclones, &c., the herein-described chamber having sides H H, opening and cover A, ladder D, and ventilators B B C C, all constructed and arranged substantially as herein shown and described.

5. An underground metallic chamber painted, tarred, asphalted, or otherwise rendered water-proof, with means of access and ventilation, and adapted to be used as a cellar or storehouse, substantially as herein shown and described.

JOSEPH N. MILEHAM.

Witnesses:
J. E. TALBOT,
HUBERT A. BANNING.