

(No Model.)

H. ENGELBERT.

WATER BACK.

No. 344,899.

Patented July 6, 1886.

Fig. 2.

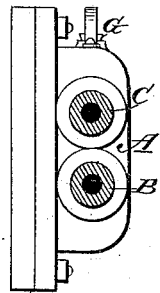


Fig. 1.

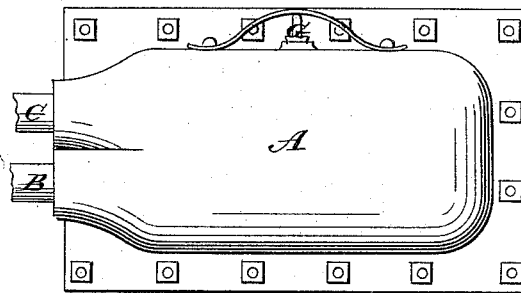


Fig. 3.

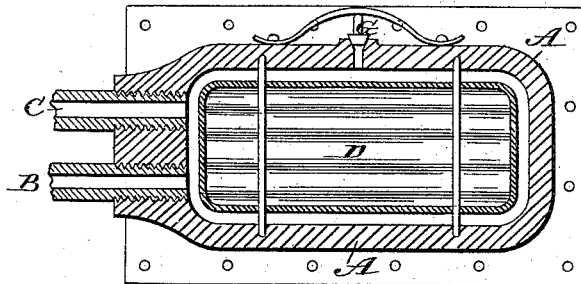
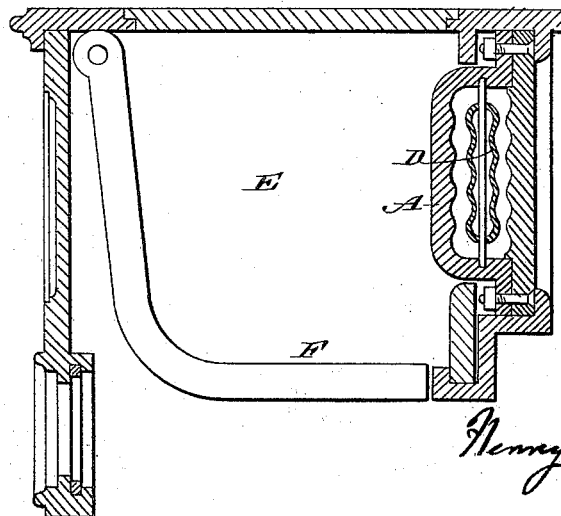


Fig. 4.



WITNESSES:

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HENRY ENGELBERT, OF DETROIT, MICHIGAN.

WATER-BACK.

SPECIFICATION forming part of Letters Patent No. 344,899, dated July 6, 1886.

Application filed December 17, 1885. Serial No. 185,890. (No model.)

To all whom it may concern:

Be it known that I, HENRY ENGELBERT, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Water-Backs, of which the following is a specification.

The object of my invention is to provide certain new and useful improvements in water-backs such as are used in ranges and stoves for heating the water in boilers at the sides of the said ranges and stoves, which water-backs are to be so constructed that they cannot burst when the water in them freezes, in case the fire goes out, and cannot be exploded by an undue pressure of steam.

The invention consists in the construction and combination of parts and details, as will be fully set forth and described hereinafter, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of my improved water-back. Fig. 2 is an end view. Fig. 3 is a longitudinal sectional elevation of the same, and Fig. 4 is a cross-section of the same in the range.

Similar letters of reference represent corresponding parts in all the figures.

The water-back A is made of any suitable metal, and consists of two pieces firmly bolted together and forming a compartment between them.

B is the pipe for conducting the cold water into the water-back, and C the pipe for conducting the hot water out of the water-back. Within the water-back I place a compressible hollow vessel, D, made of sheet metal and closed, the sides of which are corrugated, as are also the inner sides of the water-back, the said vessel D being held in place by pins projecting from the same and fastened in the top and bottom of the water-back. The water-back is held in the furnace, range, or stove E, as shown in Fig. 4. The sides of the water-back are heated to a high degree by the coals, &c., on the grate F, and thereby the water

circulating through said water-back is also heated. In case the fire goes out a quantity of water remains in the water-back, and when the temperature drops sufficiently to freeze the water it is very apt to burst the water-back, if it is of the usual construction. I avoid this by providing the compressible chamber or vessel D, which is hollow. The water expands in freezing, and as the sides of the chamber D offer less resistance than the solid sides of the water-back, said vessel or chamber D is compressed more or less. When the ice is melted by the fire in the furnace, range, or stove, the vessel D regains its former shape. Said vessel D also, to a certain extent, prevents explosions of the water-back, as the pressure of the steam collected in the water-back compresses the vessel or chamber D before injuring the sides of the water-back. If desired, a safety-valve, G, may be provided on the water-back, for the purpose of preventing such explosions. The corrugations in the compressible vessel are provided to permit the same to expand and contract more readily. The corrugations in the sides of the water-back are provided to decrease the space between the sides of the water-back and the compressible vessel or the corrugations in said compressible vessel.

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

1. The combination, with a water-back, of a closed compressible chamber or vessel in the same, substantially as set forth.

2. The combination, with a water-back, of a compressible vessel or chamber in the same, and pins projecting from said compressible vessel into the water-back, for the purpose of holding the compressible vessel in place, substantially as herein shown and described.

HENRY ENGELBERT.

Witnesses:

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