C. H. WILDER.

Vessel for Containing Fluids under Pressure.

No. 196,408. Patented Oct. 23, 1877.

Fig. 2.

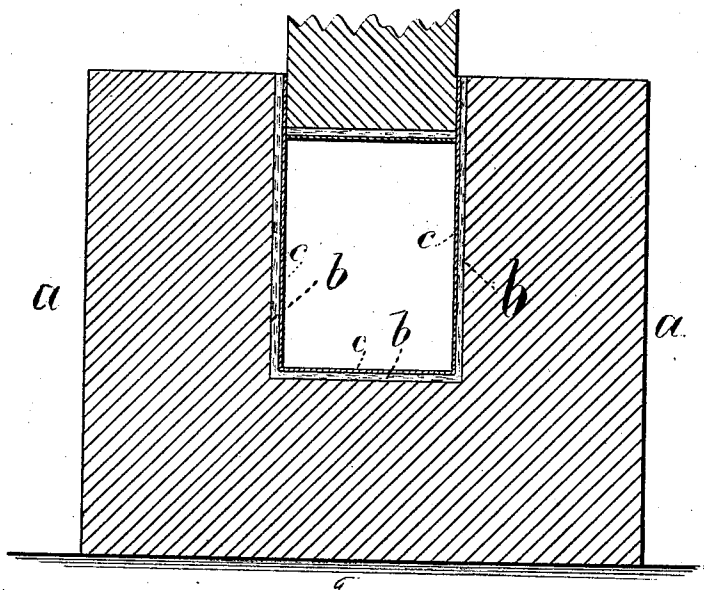
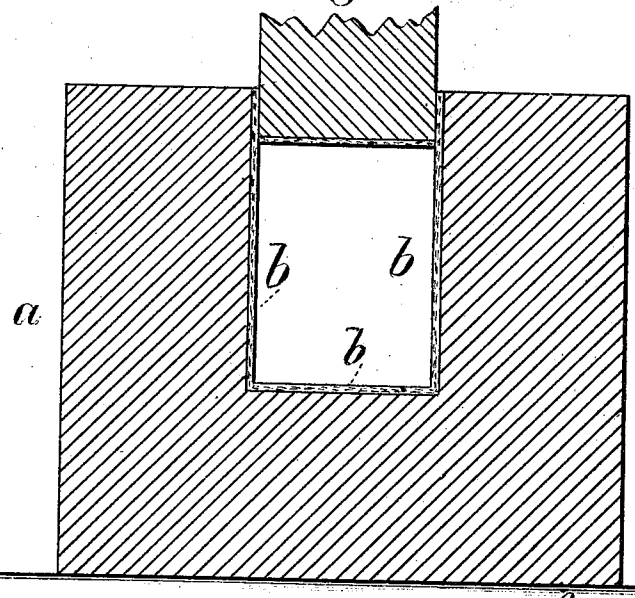


Fig. 1.



Witnesses

Chas. H. Smith

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per Lemuel W. Serrell

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UNITED STATES PATENT OFFICE.

CHARLES H. WILDER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND COLLETT LEVENTHORPE, OF NEW YORK, N. Y.

IMPROVEMENT IN VESSELS FOR CONTAINING FLUIDS UNDER PRESSURE.

Specification forming part of Letters Patent No. **196,408**, dated October 23, 1877; application filed February 1, 1877.

To all whom it may concern:

Be it known that I, CHARLES H. WILDER, of Boston, in the State of Massachusetts, have invented an Improvement in Vessels for Containing Fluids under Pressure, of which the following is a specification:

Vessels have heretofore been made of metal adapted to sustain a very heavy pressure, such as from thirty to seventy thousand pounds per square inch; but in such vessels the pressure expands the metal, and at the same time the gases or fluids penetrate the metal, more or less, and with some fluids the metal fails to retain them, as such fluids escape through the pores of the metal, and consequently such fluids cannot be stored under these heavy pressures for subsequent use, as the pressure will gradually lessen. Besides this, the cohesive power of the metal is injured by the repeated changes of pressure altering the molecular structure of the metal until the vessel either bursts or cracks, so that the gases or fluids escape.

There is also an apparent electric action in connection with the rise and fall of pressure, which appears to aid in the destruction of the vessel, but the rationale of the operation is not fully understood.

My invention is intended to prevent the gases or fluids under pressure penetrating the metal, and to intercept any electric action, and at the same time allow for the expansion and contraction of the metallic vessel resulting from changes in pressure.

To effect this object I line the metallic vessel or reservoir with paper. I prefer and use Manila paper, free from clay and other foreign substances, and I either cause said paper to adhere to the interior of the pressure-vessel by an adhesive substance, such as a siccative oil or varnish, or I retain the layer of paper by an interior lining of sheet metal.

The paper lining may be applied in the form of pulp, and suitably pressed and dried, and the paper fiber may be vegetable or mineral, such as asbestus or soap-stone.

In practice, I find that the pressure upon the paper lining causes the same to become more compact the greater the pressure, and that the fluids do not pass the same, but they are retained with little or no deterioration or change of pressure; the metal vessel is protected from injury, because the gases do not permeate the same; and, the paper being a good non-conductor, there is no electric action between the gases and the metal vessel.

Figure 1 in the drawing represents a vessel, *a*, with a lining of paper, *b*; and Fig. 2 is a similar section with the addition of a sheet-metal support, *c*, inside the paper, to keep it in place.

I am aware that reservoirs for gas have been made of paper, and that vessels for liquids under pressure have been tinned on the inside or porcelain-lined.

I claim as my invention—

1. A closed metallic reservoir for holding fluids or gases under pressure, lined throughout with Manila or other paper, substantially as and for the purposes set forth.

2. The combination, with a metallic reservoir for holding fluids or gases under pressure, of a lining of paper, and an interior support, *c*, for the same, of sheet metal, substantially as set forth.

Signed by me this 29th day of January, A. D. 1877.

CHARLES H. WILDER.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.