

W. H. BUTLER.

Vacuum Pump.

No. 55,816.

Patented June 26, 1866.

Fig. 2.

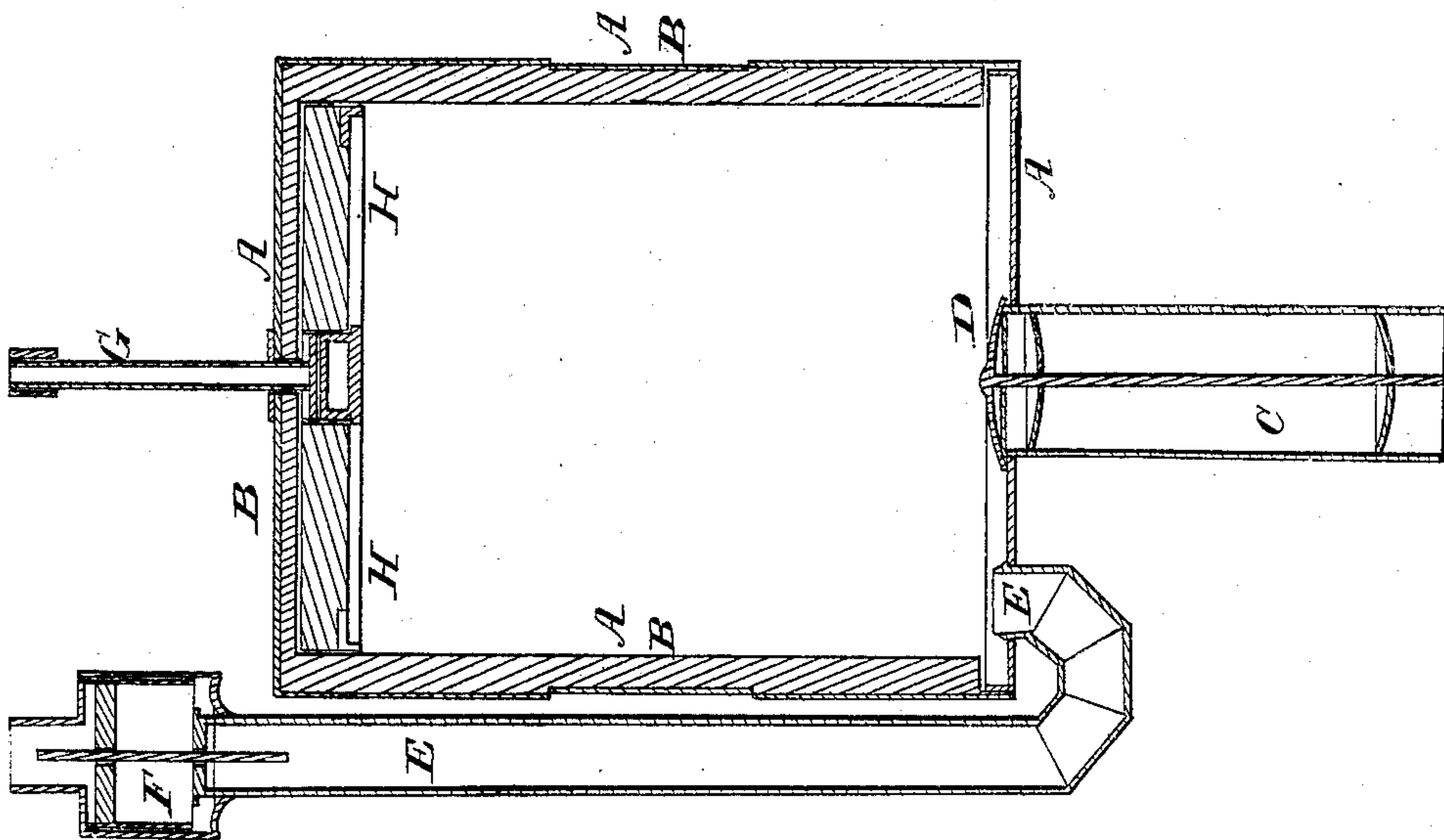
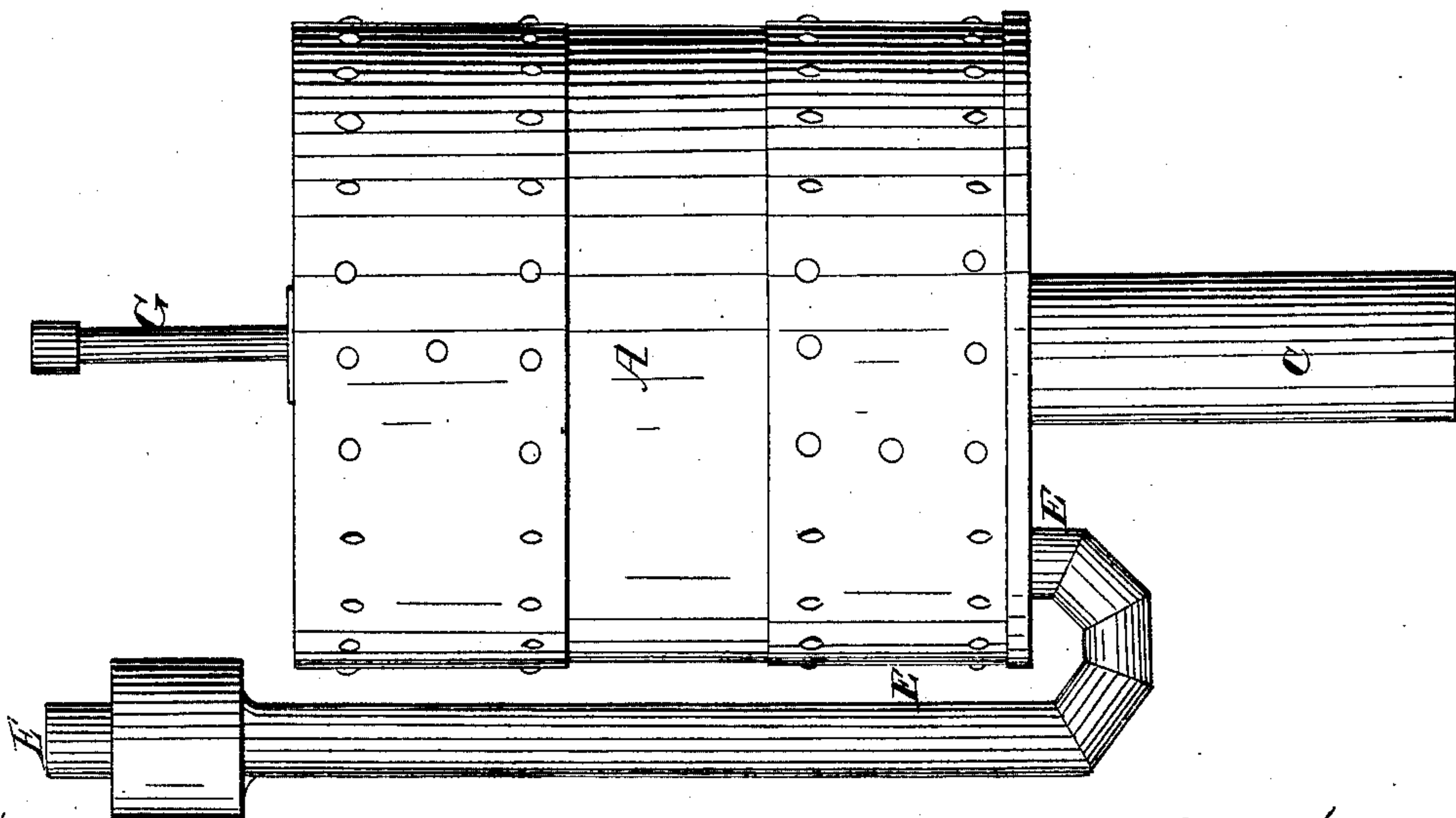


Fig. 1.



Witnesses:

J. D. Patton
L. H. Fog

Inventor:

William H. Butler
By J. A. B. Stroughton

UNITED STATES PATENT OFFICE.

WILLIAM H. BUTLER, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN RAILROAD WATER-ELEVATORS.

Specification forming part of Letters Patent No. 55,816, dated June 26, 1866.

To all whom it may concern:

Be it known that I, WILLIAM H. BUTLER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad Water-Elevators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents an external view of the apparatus. Fig. 2 represents a vertical section through the same.

The object and purpose of my invention is to provide a suitable tank and other appliances to raise water from wells, partially by vacuum created by the condensation of the steam in the tank of the apparatus, and afterward by the direct application of steam upon a follower suitably arranged for the purpose, and steam discharge and inlet pipes suitably controlled by cocks, valves, or both.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a metallic cylinder, the inside of which may be lined with wood B that has been saturated with oil or any other resistant of water; or, between the wood and the metal asphaltum, or any other similar article or compound that is a resistant of water, may be introduced; or a coating of this material may be put upon the wood, or the metal, or both, it being only necessary that it should be present in some form or application to prevent a too rapid condensation of the steam therein when forcing up the water.

In the bottom of the tank there is an inlet-pipe, C, controlled by a valve, D, opening upward. This pipe C should be long enough to always be under the surface of the water in the well. The tank itself, if so preferred, may be above said surface, and at considerable distance above it—even at or above the surface of the ground, if desirable—so long as the lower open end of the pipe C is under the water in the well.

The discharge-pipe E starts from the lower head of the tank, and first passing downward some distance, is turned upward, and furnished with a valve, F, opening upward, and the

upper end of this discharge-pipe may terminate in or over a water tank or reservoir, or be furnished with a piece of hose or other flexible termination, to connect it with the water-tank of a locomotive, from which locomotive or its boiler the steam may be taken to operate the elevator.

Through the upper head of the tank passes a steam-pipe, G, which at some convenient point in its height should be furnished with a stop-cock, self-acting or otherwise, that will close said pipe when or before it is disconnected from the boiler, so as to leave the inside of the tank A full of steam, the valve F in the pipe E, as well as the water in the lower bent portion of said pipe, aiding to insulate the inclosed steam in the tank from all external influences and allow the steam by condensation to form a vacuum, into which the water from the well will rush through the pipe C.

The follower H is furnished with a piece of rubber, I, which, when the follower comes up to, or near to, the upper end of the tank, is pressed against the lower end of the steam-pipe G, and closes said pipe tightly against the admission of water into it. This is the more essential when from any cause the water in the well should rise above the top of the tank.

When the elevator is to be used the connection between the boiler and steam-pipe is made, and then the cock (if a hand-cock) in the steam-pipe is opened and the steam let on, which, forcing down the follower H, drives the water out through the discharge-pipe to the place of delivery.

I do not claim lining a metal cylinder with wood, that having been done in steam-boilers; but

What I do claim is—

1. A metal tank lined with wood which has been previously saturated with oil or other resistant to rapid condensation of steam, or coated with such resistant on one or both sides, substantially as described, and for the purpose mentioned.

2. In combination with the follower and steam-pipe, the rubber packing I, as described.

WILLIAM H. BUTLER.

Witnesses:

WM. ELLIS,
GEO. W. ELLIS.