

T. SIMMONS.  
Rectifying Apparatus.

No. 53,895.

Patented April 10, 1866.

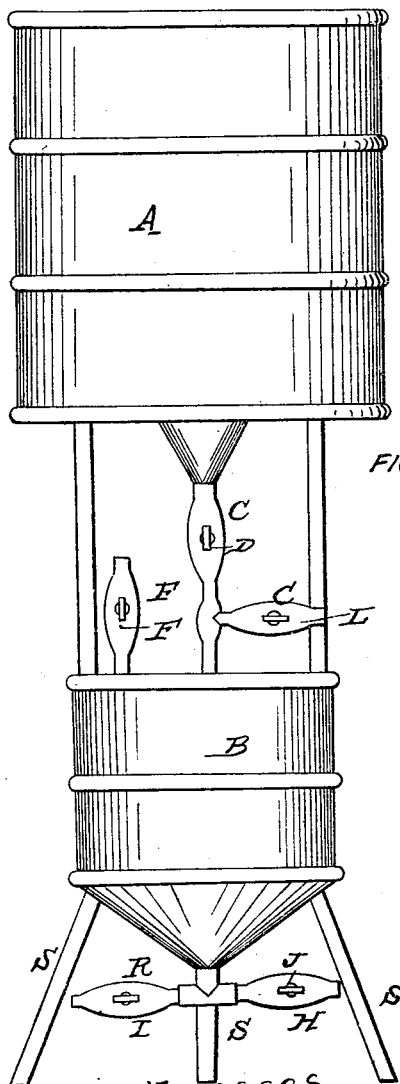


FIG. 1.

witnesses  
L. L. Colburn  
W. E. Marrs,

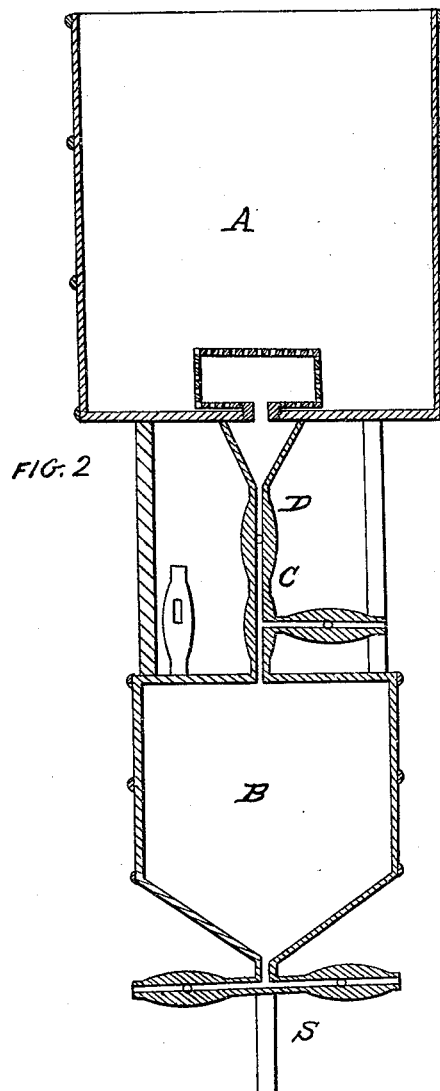


FIG. 2.

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# UNITED STATES PATENT OFFICE.

THOMAS SIMMONS, OF CHICAGO, ILLINOIS.

## IMPROVED RECTIFYING APPARATUS.

Specification forming part of Letters Patent No. 53,895, dated April 10, 1866.

*To all whom it may concern:*

Be it known that I, THOMAS SIMMONS, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Rectifying Liquors and other Analogous Uses; and I do hereby declare and make known that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and the letters and figures marked thereon, which form part of this specification.

The nature of my invention consists in a novel arrangement or apparatus whereby a vacuum may be created in the receiving-vessel, so that the pressure of the atmosphere upon the fluid in the filtering or rectifying vessel will cause it to pass through the filtering material more rapidly than it could otherwise be made to do.

To enable those skilled in the art to understand how to construct and make use of my invention, I will proceed to describe the same with particularity, making reference in so doing to the drawings aforesaid, in which—

Figure 1 represents a side elevation of my invention, and Fig. 2 a vertical central section of the same.

Similar letters of reference in the different figures indicate like parts of my invention.

A represents the reservoir in the bottom of which the filtering or rectifying material is arranged, P representing a perforated inclosure or chamber arranged above or over the orifice through which the fluids to be treated pass into the receiver B below, as hereinafter mentioned, which chamber P effectually excludes the said filtering material packed around and upon it, while at the same time the fluid will freely percolate the same.

C represents a pipe connecting the said reservoir A with the receiver B in the manner shown, being provided with the stop-cock D, for the purpose of cutting off the communication between the reservoir and receiver when desired.

E represents a vent-pipe opening into the receiver B, provided with a stop-cock, F, as shown.

H is an eduction-pipe for drawing off the rectified contents of the receiving-vessel B, being provided with a valve or stop-cock, J; and I represents a suitable pipe through which the air is expelled from the receiver B, as and for the purpose hereinafter set forth, and is

provided with a stop-cock, K, for closing the same when desired.

L represents a pipe entering the pipe C at some point below the stop-cock D, through which steam may be admitted into the receiver B from any suitable generator, said pipe L being provided with a stop-cock, O, for shutting off the steam and excluding it from the receiver.

The perforated chamber P may be covered with cloth, if desired, to exclude more effectually the filtering material therefrom and from the receiver B.

In practice the reservoir A and receiver B may be arranged in different stories in a building, instead of being supported upon legs, as shown.

Having described the construction and nature of my invention, I will now describe its operation.

The filtering material is first placed and suitably arranged in the bottom of the reservoir A, around and upon the perforated chamber P, whose construction affords far more surface and filtering capacity than a single horizontal perforated plate, and the liquid to be rectified is then admitted into the reservoir. The cocks D, F, and J are then closed and the cocks O and K are opened, thus admitting the steam from the generator aforesaid into the receiver B and allowing the air within the same expelled by the steam to escape. When the air is all, or nearly all, expelled and the whole receiver is occupied by the steam the cocks K and O are closed, and thus the receiver is made close. The steam in the receiver B is condensed or condenses, leaving a vacuum therein, so that by opening the cock D and the communication between the reservoir and receiver by the atmospheric pressure upon the liquid in the reservoir, it is rapidly forced down through the filter into the receiver B, and the process of rectifying is much more rapidly effected than by the ordinary modes. From the pressure thus secured, furthermore, we are enabled to use a much finer and more compact and effective material for the filter, and thus a better result is attained, as well as a more rapid rectification. Furthermore, the loss usually experienced from evaporation is nearly all saved by my process.

I am aware that a partial vacuum has heretofore been employed and attained by the use of steam and for analogous purposes by rare-

faction; but by my invention a substantially complete vacuum is obtained, which produces far better and more rapid results.

I therefore do not claim, broadly, the use of a vacuum for the purposes specified; but,

Having described the nature, construction, and operation of my invention, I will now set forth what I do claim and desire to secure by Letters Patent:

1. The combination and arrangement of the reservoir A, the receiver B, the connecting-

pipe C, provided with the stop-cock D, or its equivalent, and the steam-pipe L, arranged and operating as and for the purposes specified.

2. The combination and arrangement of the reservoir A, the perforated chamber P, the receiver B, connecting-pipe C, and steam-pipe L, operating as and for the purposes set forth.

THOMAS SIMMONS.

Witnesses:

L. L. COBURN,  
W. E. MARRS.