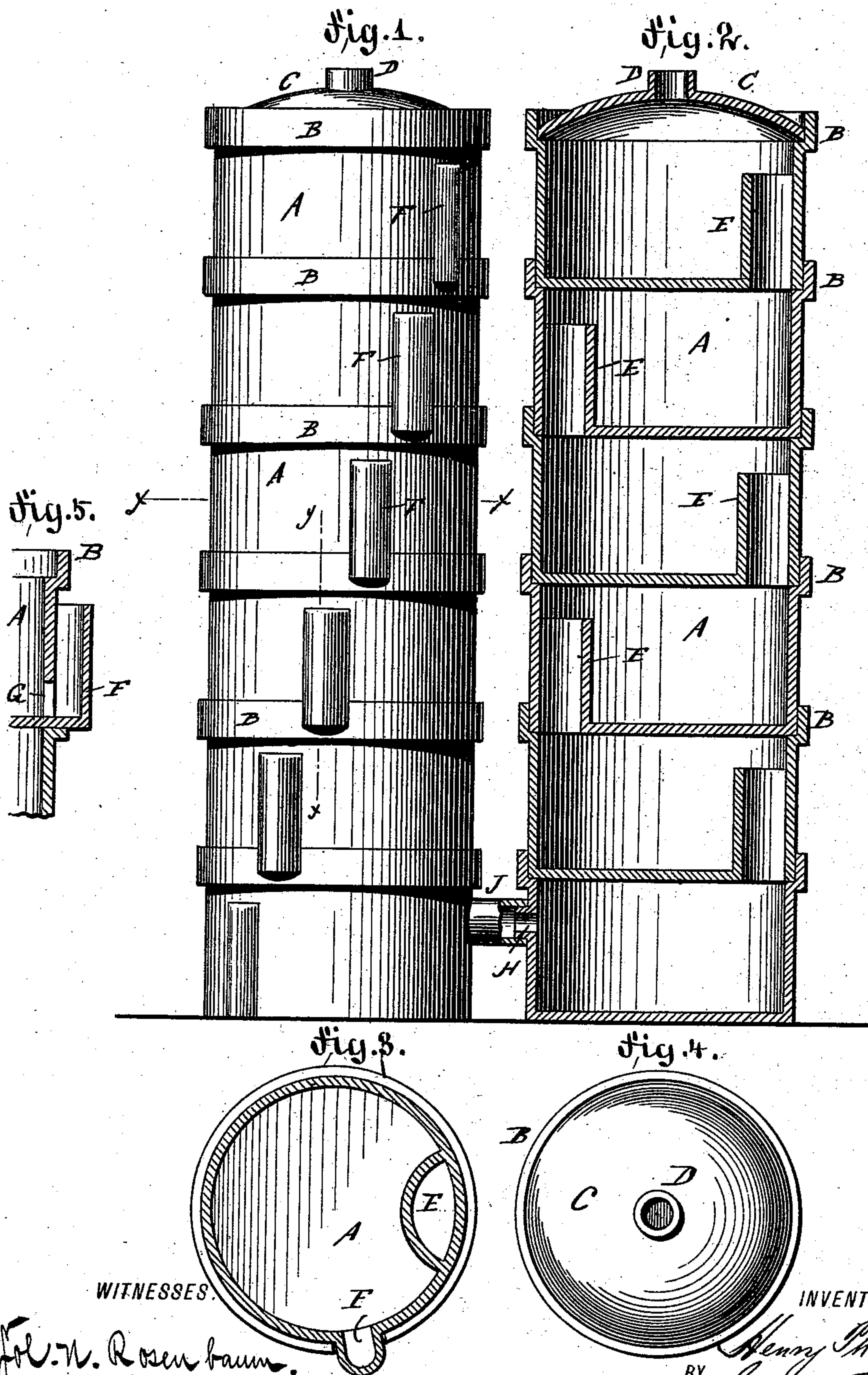


(No Model.)

H. P. WEIDIG.
ABSORPTION TOWER.

No. 376,929.

Patented Jan. 24, 1888.



WITNESSES.

J. N. Rosenbaum.
Carl Kapp

INVENTOR

BY

Henry P. Weidig
George Raegen
ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY PH. WEIDIG, OF PHILADELPHIA, PENNSYLVANIA.

ABSORPTION-TOWER.

SPECIFICATION forming part of Letters Patent No. 376,929, dated January 24, 1888.

Application filed September 8, 1887. Serial No. 249,092. (No model.)

To all whom it may concern:

Be it known that I, HENRY PH. WEIDIG, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Absorption-Towers, of which the following is a specification.

This invention relates to improvements in absorption-towers for the manufacture of muriatic or nitric acid; and the object of my invention is to provide an absorption-tower of such construction that when the same is erected and packed it can be used continuously and need not be taken apart for refilling.

The invention consists in an absorption-tower for the manufacture of nitric or muriatic acid, composed of a series of cylindrical sections open at the top and closed at the bottom, each section having a vertical channel extending from the bottom to a short distance from the top, and each section being also provided with a laterally-projecting external cup, open at the top and in communication with the bottom part of the section.

In the accompanying drawings, Figure 1 is an elevation of one of the towers. Fig. 2 is a cross sectional view of the other tower. Fig. 3 is a horizontal sectional view on line *x x*, Fig. 1. Fig. 4 is a top view of one of the towers. Fig. 5 is a detail cross-sectional view on line *y y*, Fig. 1, parts being broken out.

Similar letters of reference indicate corresponding parts.

Each tower is composed of a series of cylindrical sections, A, made of earthenware, having closed bottoms and open tops and provided with exterior annular upwardly-projecting flanges B at their open ends. The sections A are placed one upon the other, the bottom part of one section passing into the annular flange B on the top of the next lower section, the joints being carefully packed and closed. Upon the uppermost section a cover, C, is placed, which is provided with a central neck, D, for coupling the pipe that leads the gases or fumes into the tower.

Each cylindrical section A is provided with an upwardly-projecting channel, E, formed on the inside and extending from the bottom of the section to within about one-quarter of the height of the section from the top. The

sections are so placed that the channels D are alternately at opposite sides, so as to lengthen the course of the gas as much as possible. Each section is also provided with a semi-tubular upwardly-extending exterior projection or cup, F, open at the top and in communication with the bottom part of the section by an aperture, G. The upper edges of the projections or cups F are on the same level with the tops of the corresponding channels, E, of the sections. The upper flanges, B, of the sections must be recessed, so as to permit the bottom parts of the projecting cups F to pass through them, as shown in Fig. 1. The bottom sections are not provided with vertical channels E, but are provided with laterally-projecting necks H, which are coupled by a horizontal pipe, J.

The operation is as follows: The hot gases from the retorts or converters are conducted into the top of one tower, the gases passing from one chamber to the other by means of channels E, and, coming in contact with a large surface of water, a great amount is absorbed. The gases rise upward in the second tower, and, if necessary, are drawn up by means of a suction apparatus, whereby the remaining parts of the gases are absorbed. When the acid in the tower into which the gases are first conducted at the top is almost concentrated, the pipe for conducting the gases to the towers is replaced—that is to say, it is placed on the top of the other tower—so that the gases pass downward in the tower in which they formerly passed upward, and the weaker gases pass upward in the tower in which the stronger gases formerly passed downward, whereby the acids in both towers are concentrated. During the operation a hydrometer is placed into each cup F, to facilitate watching the operation and regulating the flow of the gases. The acid is removed from the sections by means of siphons placed into the cups F. The tower is then again filled with water poured in through the cups F.

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

1. An absorption-tower for the manufacture of muriatic or nitric acid, composed of a series of cylindrical sections open at the top and

closed at the bottom, each section having a vertical channel extending from the bottom to a short distance from the top, and each section being also provided with an external later-
5 ally-projecting cup open at the top and in communication with the bottom part of the section, substantially as herein shown and described.

10 2. A section of an absorption-tower for the manufacture of muriatic or nitric acid, consisting of a cylinder closed at its bottom and flanged externally at its open top and provided with a vertical channel extending from the bottom

to within a short distance from the top, and also provided with an external cup open at the top and having its bottom in communication with the bottom part of the section, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HENRY PH. WEIDIG.

Witnesses:

FRANK S. CHRISTIAN,
ROBERT B. TERRY.