

(No Model.)

A. PATCHEN.

SOLUTION OF DICHLORIDE OF COPPER, &c., FOR TREATING ORES.

No. 319,118.

Patented June 2, 1885.

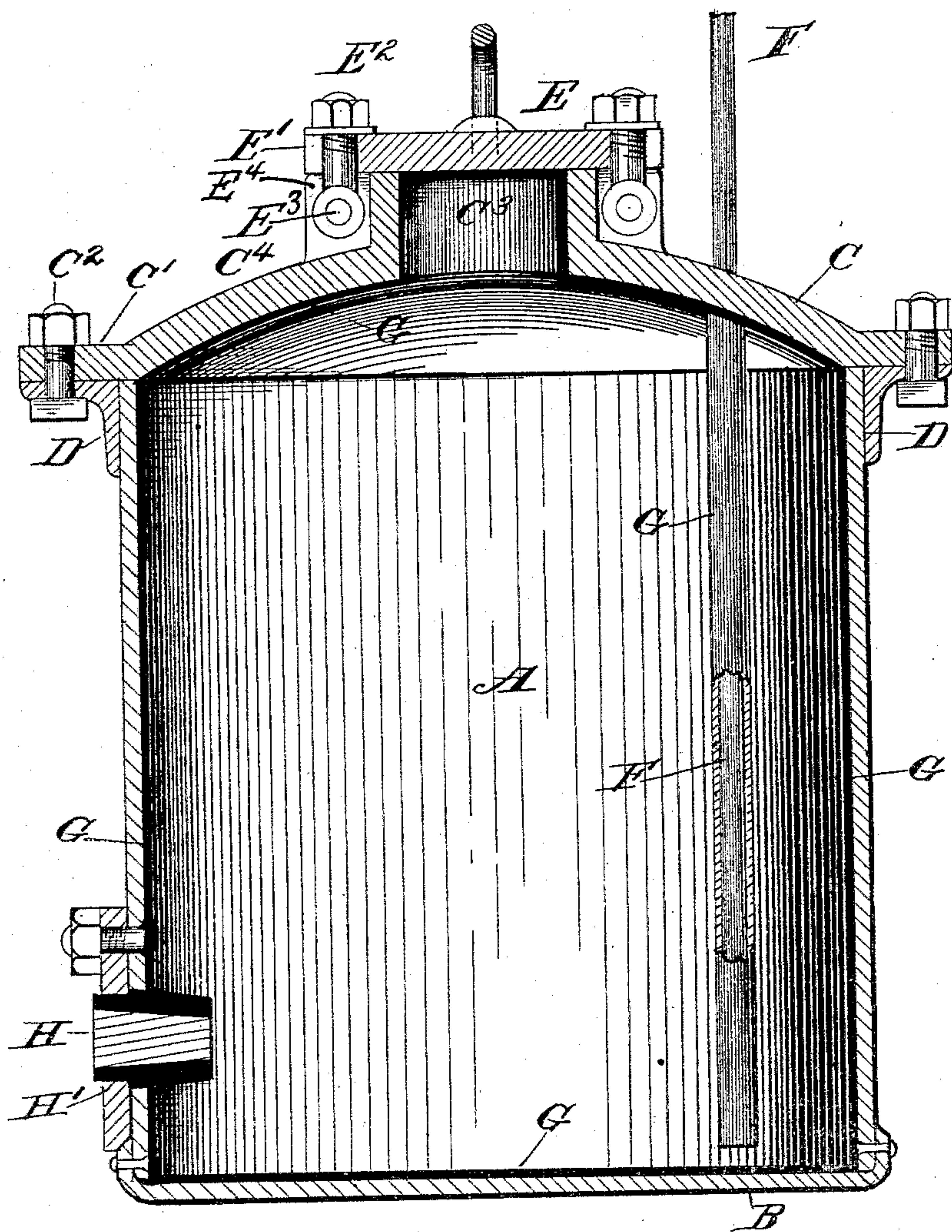


Fig. 1.

Fig. 2.

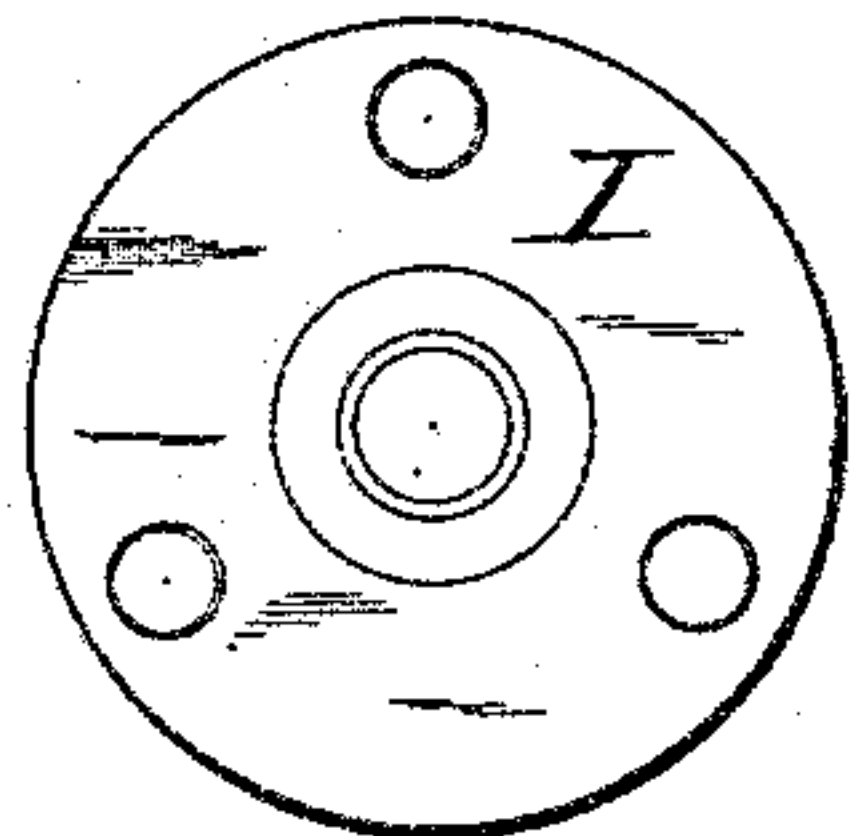
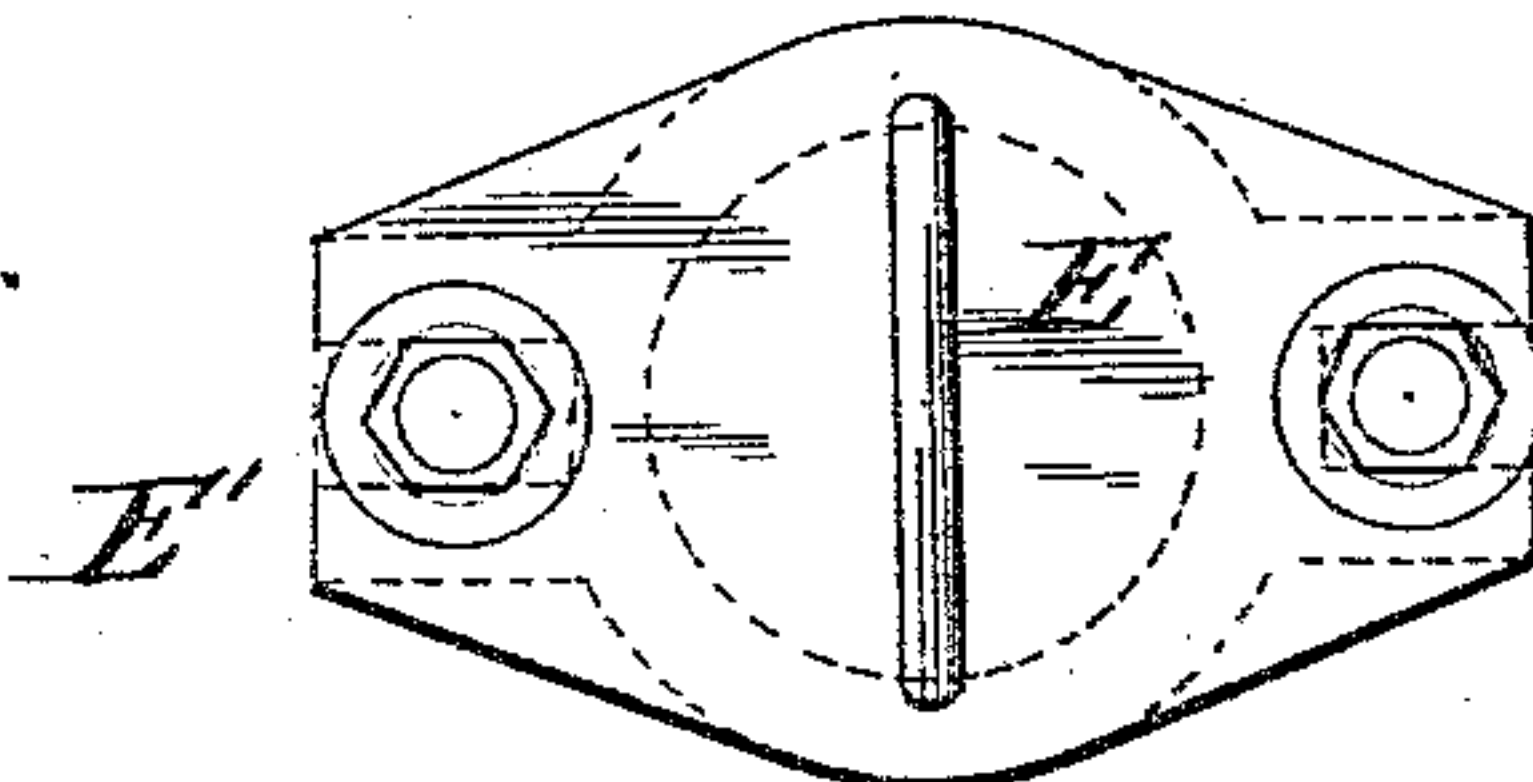


Fig. 3.



Witnesses;
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UNITED STATES PATENT OFFICE.

ABEL PATCHEN, OF WESTFIELD, NEW YORK.

SOLUTION OF DICHLORIDE OF COPPER, &c., FOR TREATING ORES.

SPECIFICATION forming part of Letters Patent No. 319,118, dated June 2, 1885.

Application filed May 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, ABEL PATCHEN, a citizen of the United States, residing at Westfield, in the county of Chautauqua and State of New York, now temporarily residing in Mexico, have invented certain new and useful Improvements in Processes of Making Dichloride of Copper, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to the process of making dichloride of copper, or a solution or a product for use in treating ores chemically—for instance, according to the process set forth in United States Patent No. 170,535 granted to Henry H. Eames and myself jointly, November 30, 1875, or any other process in which a chloride of copper is employed.

The invention consists in the method hereinafter set forth.

Referring to the drawings, Figure 1 is a central vertical section of the apparatus. Fig. 2 is a detail hereinafter described. Fig. 3 is a plan of the cover of the apparatus.

Like letters indicate like parts in all the figures.

A represents the body of the apparatus, which consists of an ordinary cylinder of suitable metal—as boiler-plate—open at both ends, to which is secured in any suitable manner—as by rivets or bolts—a bottom, B, which in this instance is flat, but which may be semi-spherical, or of any other suitable outline, if desired.

C represents a top, which in this instance is a casting of any desirable contour, having a flange, C', which is perforated for the passage therethrough of bolts or rivets C². At the upper portion of the top is secured in any suitable manner an angular hoop or band, D, having a projecting flange flush with the upper edge of the body and faced off to agree with the under surface of the top, so that an air and steam tight joint is made between them when bound together by the bolts.

The band D may be secured to the body by bolts or rivets, which, like those securing the bottom to the body, terminate at their inner ends flush with the surface of the body.

The top C is provided with an opening, C³, through which the chemicals employed in the

process are introduced into the apparatus. A cover, E, is provided for the opening and overhangs the same, and is slotted, as at E', for the reception of the bolts E², which are pivoted at E³ to ribs E⁴, formed as a part of the cap, so that by loosening the nuts of the bolts E² they may be swung outwardly on their pivots to free the cover for removal, as well as to serve as means for firmly binding the cover in place, so as to securely close the opening against the escape of steam therefrom.

F represents any ordinary steam-supply pipe, which passes through the top and reaches nearly to the bottom of the apparatus or vessel. The entire inner surface of the body and bottom of the vessel or apparatus is coated with any suitable material which will resist the action of the chemicals used in the process. I have found by experience as best, and represent in this instance, a lining, G, of lignum-vitæ, and the pipe F is also coated or covered and protected by the same means, as may also be the top.

H represents the discharge-plug, preferably made of lignum-vitæ, firmly driven into the opening in the wall of the body portion of the vessel, near its bottom. A faucet of ordinary construction, preferably made of lignum-vitæ, may be inserted in the bore of the bushing H, and serve as means for withdrawing the contents of the vessel at will. In this instance the plug is tapered, so as to form a tight fit in the hole formed in the body of the vessel, and is provided with an annular shoulder, H', upon which is mounted a binding-plate or washer, I, which is secured by bolts or rivets to the outer wall of the vessel, so that the plug or bushing is firmly held in place and against removal from steam or other pressure within the vessel.

In making dichloride of copper with this apparatus, or any other which is adapted to the process herein described, I place within it in any desired or necessary quantities or proportions metallic copper, a desired salt—as chloride of sodium—and a solution of sulphate of copper—that is to say, water and sulphate of copper. I then close the head tightly, and also the discharge-opening or any faucet therein, as described, and heat the mixture by means of steam introduced through the

pipe F, and by reason of the confinement of the mixture within the apparatus and the entire closeness of the same I also simultaneously subject the mixture to a pressure exerted by the steam.

By the employment of the lining, for which the copper has no affinity, the apparatus is rendered capable of long-continued use, and successive withdrawals from and renewals of the mixture may be made, so that a constant supply is provided.

I do not limit my invention to any proportionate quantity of the ingredients, nor to any particular strength of any solution of sulphate of copper, nor to any particular degree of pressure exerted upon the mixture at the time of heating the same, except, the process being in a closed vessel, the pressure would evidently be more than that of the external atmosphere.

No claim is herein made for the apparatus, as that properly forms the subject-matter of a separate application.

I have herein designated the product of my process as "dichloride of copper;" but whatever it be, or by whatever name it be designated, I do not limit my invention by reason of any name selected to designate the product, as it, when produced by my process, has proved useful in treating ores.

Having described my invention and its operation, what I claim is—

The process herein set forth of making a product for use in treating ores, which consists in treating sulphate of copper in the presence of salt, water, and metallic copper under pressure and with heat.

In testimony whereof I affix my signature in presence of two witnesses.

ABEL PATCHEN.

Witnesses:

E. B. STOCKING,
WM. S. DUVALL.