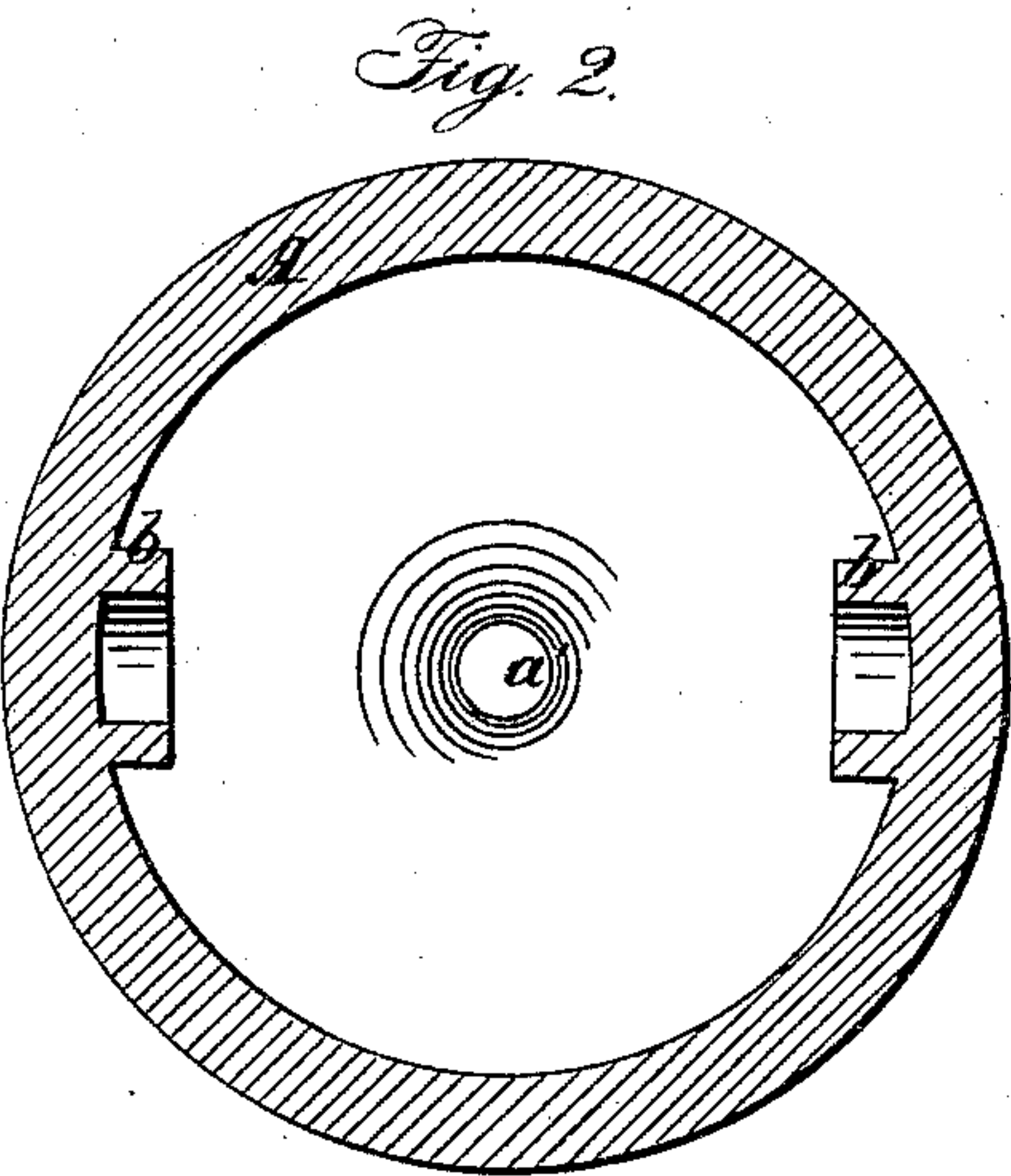
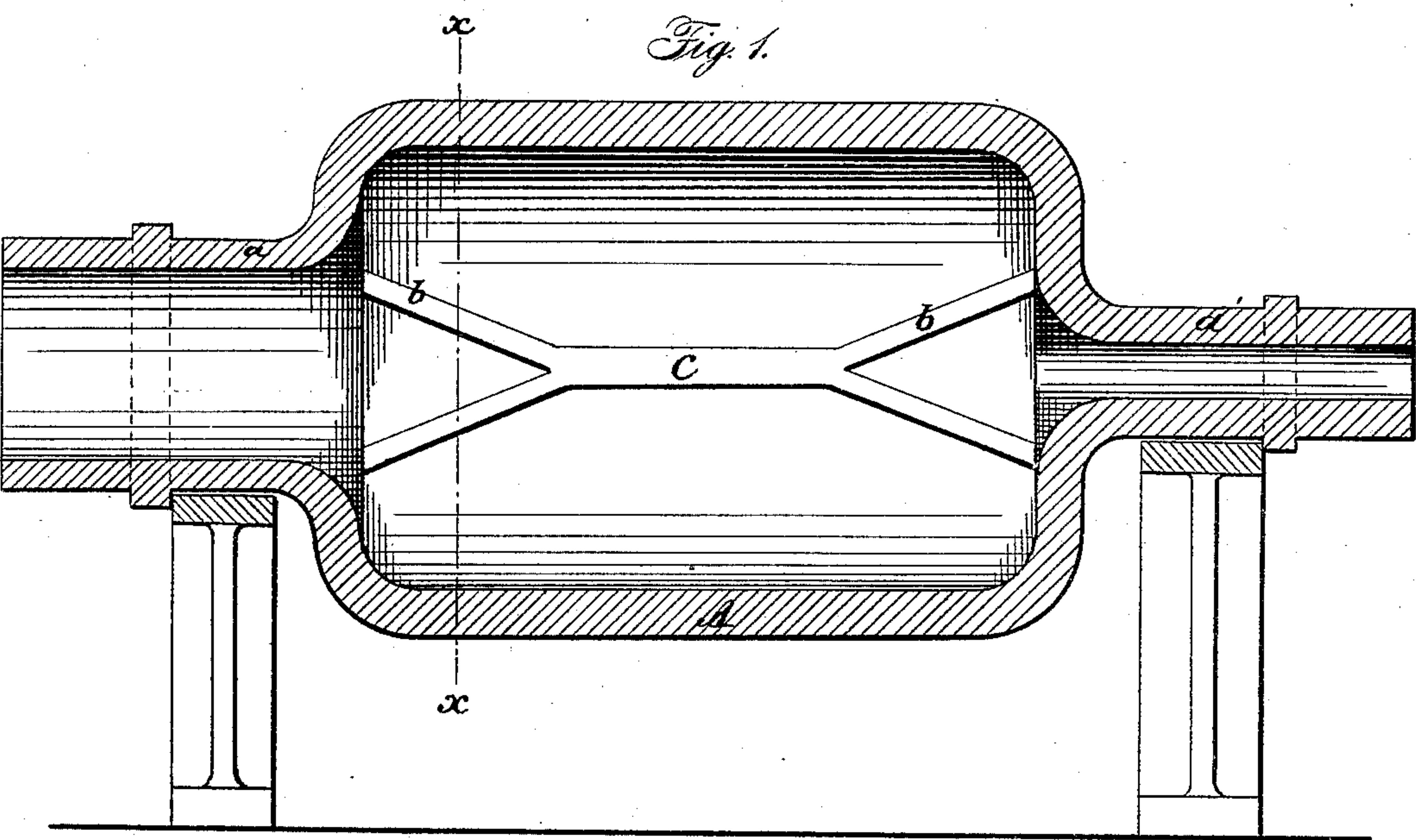


D. B. & A. D. COLES.  
Making Chemicals.

No. 50,907.

Patented Nov. 14, 1865.



Witnesses:

*Wm. Brewin*  
*J. D. Fairbank*

Inventor:

*D. B. Coles*  
*A. D. Coles*  
*By Munn & Co.*  
*Atty.*



# UNITED STATES PATENT OFFICE.

D. B. COLES AND A. D. COLES, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN RETORTS FOR THE MANUFACTURE OF PRUSSATE OF POTASH.

Specification forming part of Letters Patent No. 50,907, dated November 14, 1865.

*To all whom it may concern:*

Be it known that we, D. B. COLES and A. D. COLES, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Retorts for Manufacturing Prussiate of Potash, &c.; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal central section of this invention. Fig. 2 is a transverse vertical section of the same, the line  $x x$ , Fig. 1, indicating the plane of section.

Similar letters of reference indicate corresponding parts.

This invention relates to an improvement in that class of retorts which are generally constructed of cast-iron or other suitable material, cylindrical, with gudgeons on which it can be rotated, and one of which is bored out, so as to obtain an aperture for the purpose of introducing the charge or removing the same when ready.

The invention consists in the arrangement of double V-shaped ribs secured to the inner circumference of the retort and extending from its end toward the center in such a manner that by the action of said ribs the material contained in the retort is thrown toward the center and caused to collect on a shovel which may be introduced through the tubular gudgeon of the retort, and thereby the operation of withdrawing the charge is greatly facilitated, and all the particles which otherwise would be liable to accumulate in the corners of the retort are readily reached and removed. The retort is made in the form of a cylinder with rounded edges, so that all the parts of the same wear out even, and the material contained in the retort is heated uniformly throughout.

A represents a retort made of cast-iron or any other suitable material, in the form of a cylinder with rounded edges, whereby the strength of the retort is improved, and at the same time, by preserving the cylindrical form of the retort, all the parts thereof are exposed to a uniform heat, and the wear of the retort is uniform throughout, preventing it from burning out one place while other places preserve their full strength.

The retort revolves on gudgeons  $a a'$ , which extend from its heads and have their bearings in suitable journal-boxes. One or both of these gudgeons are hollow, but the diameter of the gudgeon  $a$  is much larger than that of the gudgeon  $a'$ , and the hole through it is sufficiently large to give convenient access to the interior of the retort. Through this opening the retort is charged and emptied, and the operation of emptying or withdrawing the charge is effected by means of a shovel, which is inserted through said tubular gudgeon, and, when full, withdrawn through the same passage through which it had previously been introduced. By these means a large portion of the charge can be conveniently reached; but that portion thereof which accumulates in the corner next to the opening leading from the gudgeon  $a$  to the interior of the retort cannot be reached. This difficulty is avoided by the application of two or more pairs of V-shaped ribs,  $b$ , the bases of which rest upon the inner surfaces or heads of the cylinder, whereas their apexes point toward each other, and are connected by short ribs  $c$ , running parallel with the axial line of said cylinder. By the action of the V-shaped ribs the material in the cylinder is thrown from the corners toward the middle thereof, and if a shovel is introduced through the tubular gudgeon  $a$ , the material in the retort readily accumulates thereon, and the operation of withdrawing the charge is considerably facilitated. Said ribs also serve to agitate the material in the retort, so that the same is uniformly heated throughout, and much time and expense is saved, particularly in the manufacture of prussiate of potash, for which our retort is principally intended.

We claim as new and desire to secure by Letters Patent—

1. The double V-shaped ribs  $b$ , arranged in the interior of the retort A, substantially in the manner and for the purpose described.

2. The employment of a cylindrical retort with rounded corners and tubular gudgeons, substantially as and for the purpose set forth.

D. B. COLES.  
A. D. COLES.

Witnesses:

WM. T. CHINGUS,  
JONATHAN T. HAND.