

(No Model.)

A. RAPPOLD & E. LEITH.

MANNER OF SETTING RETORTS FOR TREATING SULPHURIC ACID.

No. 260,414.

Patented July 4, 1882.

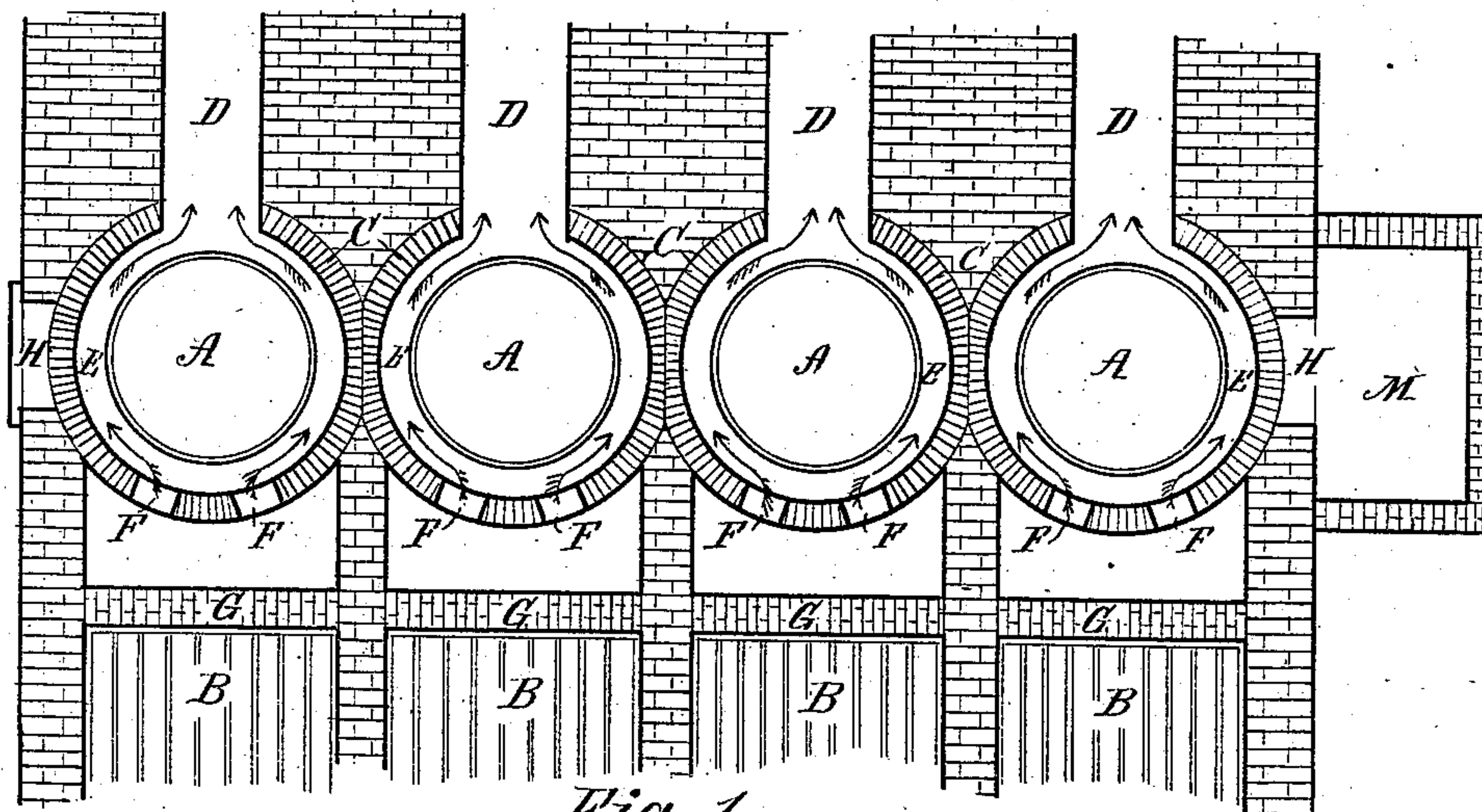


Fig. 1.

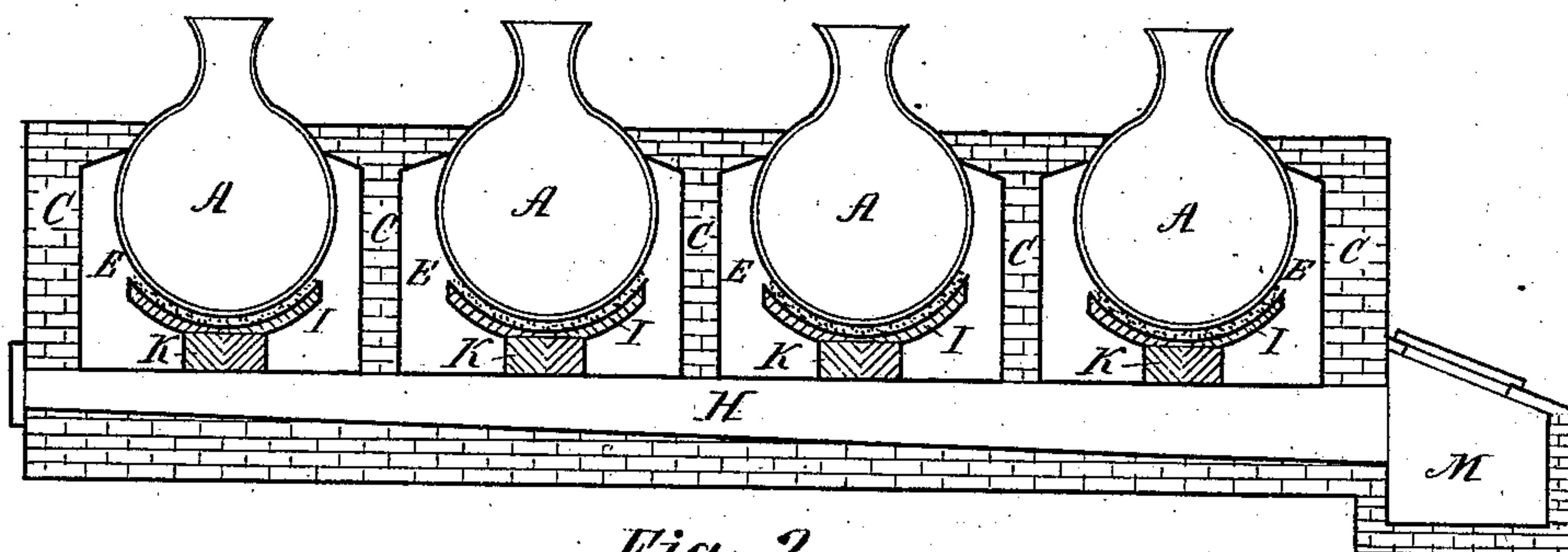


Fig. 2.

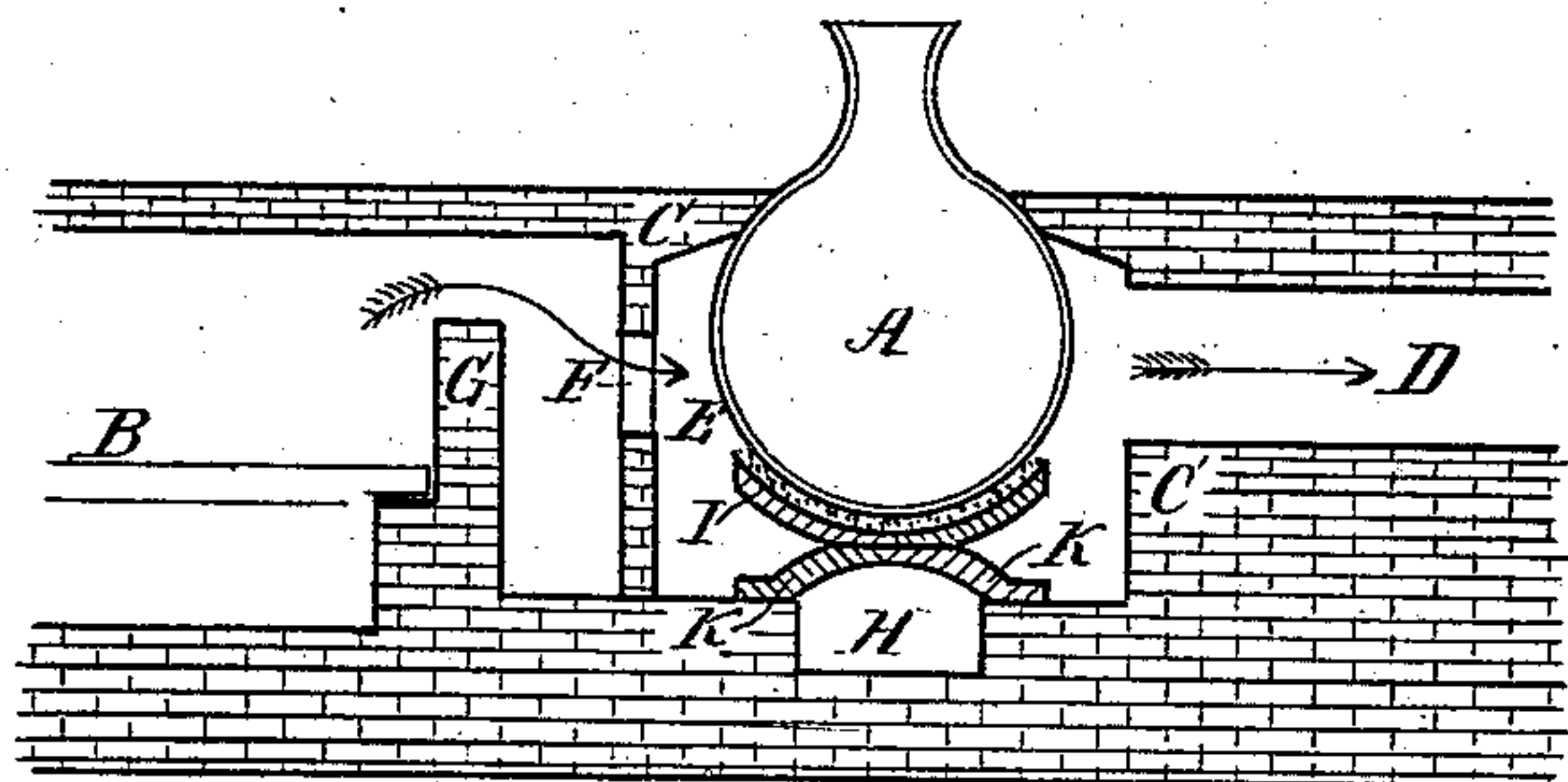


Fig. 3.

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UNITED STATES PATENT OFFICE.

ALBERT RAPPOLD AND ERNEST LEITH, OF TITUSVILLE, PENNSYLVANIA.

MANNER OF SETTING RETORTS FOR TREATING SULPHURIC ACID.

SPECIFICATION forming part of Letters Patent No. 260,414, dated July 4, 1882.

Application filed February 20, 1882. (No model.)

To all whom it may concern:

Be it known that we, ALBERT RAPPOLD and ERNEST LEITH, of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in the Manner of Setting Retorts for the Treating of Sulphuric Acid, of which the following is a specification.

Our invention relates principally to those retorts used in restoring "spent acid," or acid that has once been used in purifying oils or other matter, and by a system of treatment, including boiling, is purified and restored in power. The boiling is done in large glass retorts holding thirty gallons or more. These retorts are set in a row, or, as it is called, a "bench," each bench containing a greater or less number of retorts, as required, the fire being upon one side, and the heat and flame passing around the retort and off through a flue into the stack on the opposite side. As a matter of course, the glass retorts are very liable to fracture, when, as they are commonly set, the acid flows into the furnace and out into the room, endangering the life of the attendants or any person near, and also wasting the acid; also, the retorts are sometimes set in a cast-iron saucer or vessel made to receive the bottom of the retort, the space between the saucer and retort being filled with dry sand, the heat and flame passing directly to and around the saucer. The extreme heat required soon destroys the saucer, and in consequence the support gives way and the retort is broken.

The object of our invention is to so arrange the setting and construct the furnace as to have the products of combustion from the furnace pass around the retort above the saucer, and in case of fracture to prevent the released acid from flowing into and through the furnace, and to conduct it through a drain or sewer under the retorts into a reservoir at one end of the bench, that it may be saved. This we do by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a bench of four retorts. Fig. 2 is a longitudinal vertical section, and Fig. 3 a transverse vertical section of the same.

Similar letters refer to similar parts.

A represents the retorts, setting in and sup-

ported by the cast-iron vessels or saucers I; B, the furnaces; C, the brick wall inclosing the retorts; D, smoke-flues leading to the stack; E, space between the retort and the inclosing wall C; F F, fire-openings through the wall C, the lower part of which is just above the top of the saucer I. G is a breast-wall in rear of the furnace B, the top being slightly above the top of the openings F.

H is a sewer extending through the entire bench under the retorts, and inclined to one end, where it terminates in the reservoir M. This sewer is furnished, necessarily at the lower end and preferably at the upper end, with close-fitting doors, in order that when closed the draft of the furnaces be not impaired.

The saucer I is supported by the arms or legs K K, spanning the sewer H and resting on the wall on either side. Otherwise the saucer has an open space all around to the sewer.

It will be seen that, the openings F being above the top of the saucer I, the saucer is not exposed to the extreme heat and lasts much longer than when in the direct current of heat.

It will also be seen that in the event of one of the retorts being broken the breast-wall G prevents the acid from flowing back through the furnace; but the space being open to the sewer H, the acid is collected into the sewer and conducted to the reservoir M, from which it may be removed at leisure. The sewer H has also another use. When the acid in the retorts has been sufficiently boiled and the fires drawn, by opening the doors at either end of the sewer it is converted into a cold-air flue, the air passing around the retorts, cooling them and making them ready for emptying in much less time than formerly.

We make no claim for the manner of setting the retort A in the saucer I, nor for the breast-wall G and fire-openings F, so constructed that the fire shall enter around and below the saucer.

What we do claim as our invention is—

1. In a retort-setting, the combination of the inclosing wall C and breast-wall G, the latter constructed between the furnace B and the inclosing wall C, the top of the breast being above the top of the fire-openings F and the bottom of the fire-openings F being above the top of the saucer I, substantially as described, and for the purposes herein set forth.

2. The sewer H, constructed the entire length of the bench, under the retorts, inclining toward one end and terminating in the reservoir M, substantially as described.

5 3. The flue H, constructed the entire length of the bench, under the retorts, and provided with close-fitting doors at either end, as a cold-air flue for cooling the retorts when required, substantially as described.

10 4. In combination with a bench of retorts

for treating sulphuric acid, constructed in the ordinary manner, the breast-wall G, the sewer H under the retorts, and reservoir M, constructed substantially as described, and for the purposes herein set forth.

ALBERT RAPPOLD.

ERNEST LEITH.

Witnesses:

ENOS SPIEGEL,

SAMUEL GRUMBINE.