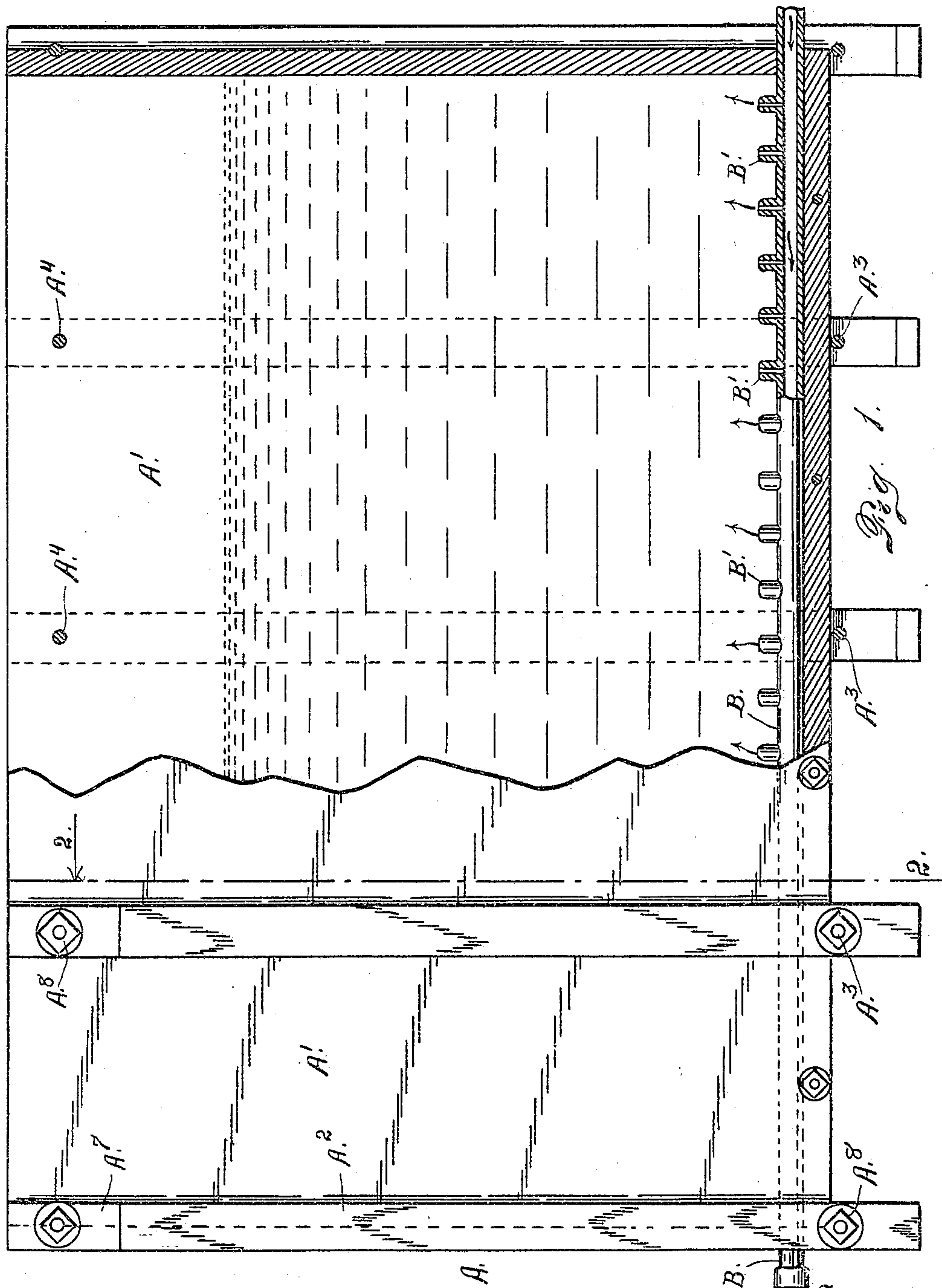


No. 787,902.

PATENTED APR. 25, 1905.

C. E. DEWEY.
LEACHING APPARATUS.
APPLICATION FILED AUG. 3, 1904.

2 SHEETS—SHEET 1.



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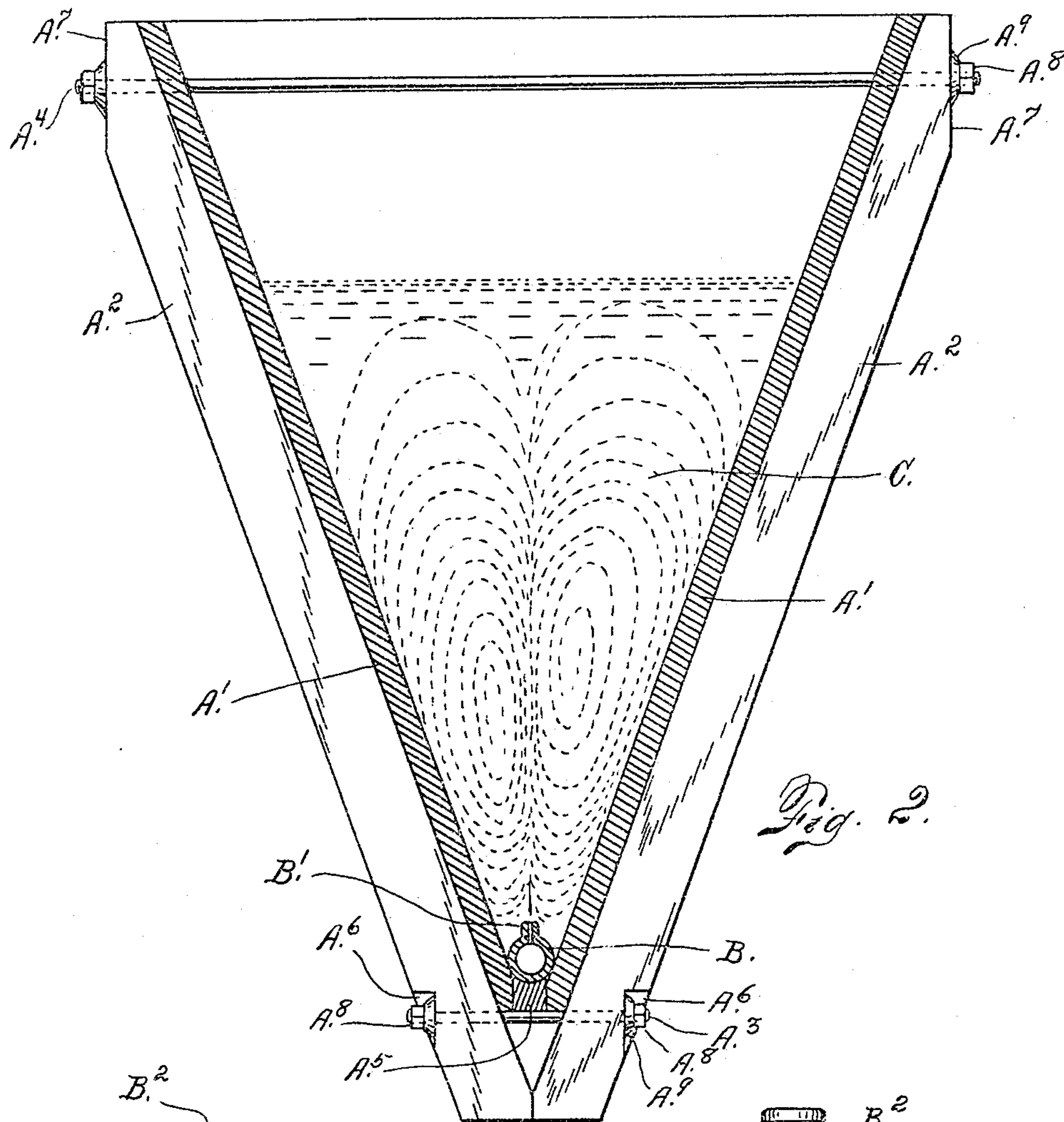


Fig. 2.

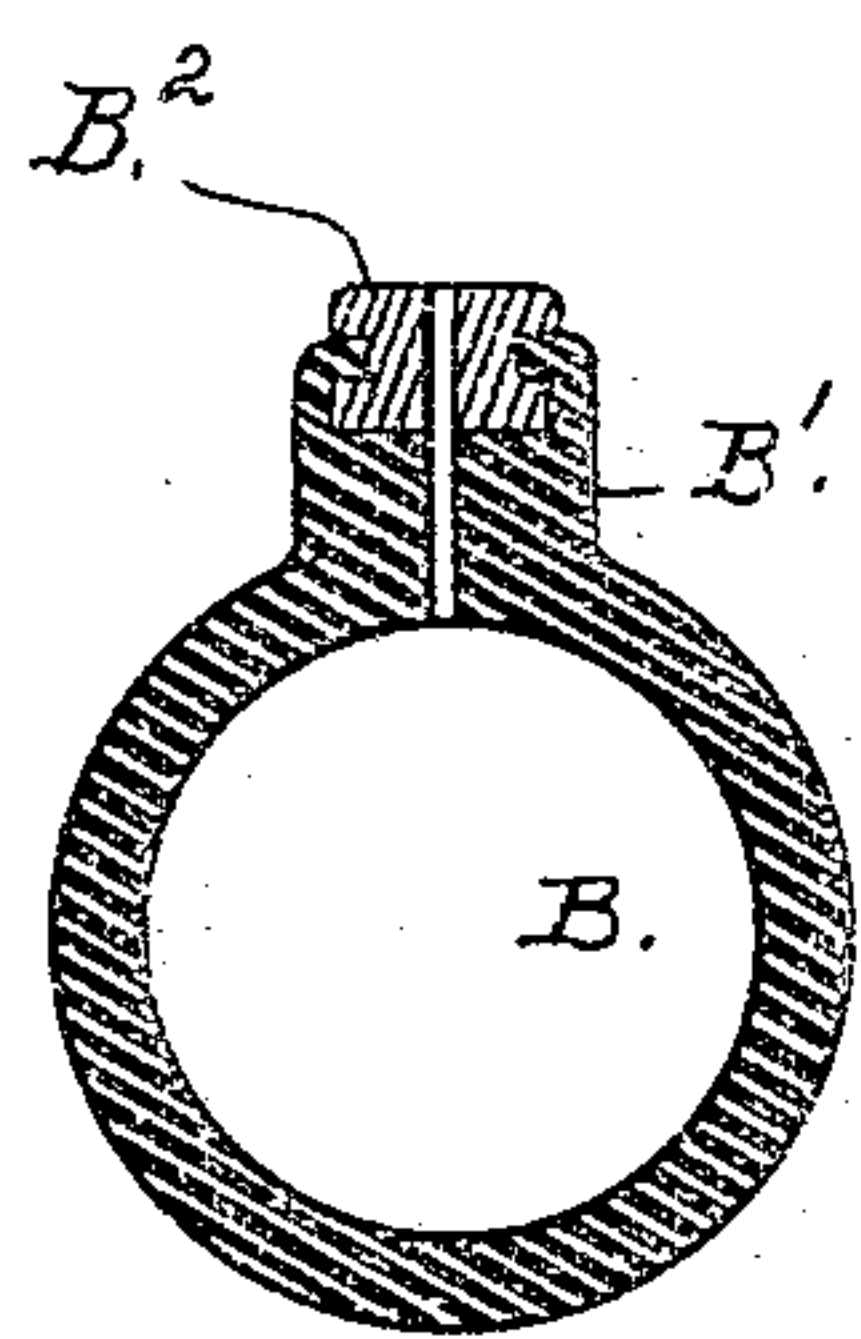


Fig. 3.



Fig. 4.

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UNITED STATES PATENT OFFICE.

CHAUNCEY E. DEWEY, OF DENVER, COLORADO, ASSIGNOR TO THE AMERICAN ZINC AND CHEMICAL COMPANY, OF DENVER, COLORADO.

LEACHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 787,902, dated April 25, 1905.

Application filed August 3, 1904. Serial No. 219,295.

To all whom it may concern:

Be it known that I, CHAUNCEY E. DEWEY, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Leaching Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in leaching apparatus adapted for use where chemicals are introduced into the bottom of the pulp to be leached and directed upwardly into the pulp for the purpose of maintaining the ore in suspension during the leaching operation. In processes of this character the chemicals employed are of such a nature that a lead conduit is generally employed for introducing the chemicals into the ore, since this material resists the action of the chemicals which would attack ordinary metals, as iron, and soon destroy them. The lead, however, is so soft that if it is simply perforated the chemicals being introduced in the form of fluid under pressure have a tendency to pass through the orifices at an angle to the perpendicular, and this tendency gradually enlarges the orifices in the lead pipe, and this enlargement is in a longitudinal direction or lengthwise with the pipe, thus virtually forming an elongated opening whereby in a comparatively short time the pipe is so worn away that a slot will be formed therein connecting the orifices and virtually destroying the pipe. In order to overcome this difficulty, I have conceived the idea of providing the lead pipe with orificed nozzles of sufficient length to cause the agitating fluid to pass upwardly into the tank in vertical jets, the said nozzles being formed of lead or the same material as the pipe and burned on in a manner that will be readily understood. These nozzles may be formed integral with or applied to the pipe in the form of comparatively small lugs or projections and afterward centrally

bored to form the orifices through which the fluid or fluids escape into the tank. In order to further increase the life of the pipe or the orificed portion thereof, I apply to the upper extremity of each nozzle a tip of porcelain or other suitable material, which is molded into or otherwise suitably connected with the nozzle. This porcelain tip is provided with a central orifice, and afterward the lead is bored in line with the orifice in the porcelain tip to permit the escape of upwardly-directed fluid-jets from the pipe when the fluids are introduced thereto under suitable pressure for leaching purposes.

Having briefly outlined my improved construction, as well as the function it is intended to perform, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side view of my improved leaching-tank, the same being shown partly in elevation and partly in vertical longitudinal section. Fig. 2 is a cross-section of the tank on the line 2 2, Fig. 1. Fig. 3 is a cross-section of the conduit in the bottom of the tank shown on a larger scale. Fig. 4 is a detail view of the porcelain or other tip employed in connection with the vertically-disposed nozzles of the pipe or conduit.

The same reference characters indicate the same parts in all the views.

Let A designate my improved leaching-tank considered in its entirety. This tank is V-shaped in cross-section, and its side walls are supported by beams or bars A², applied thereto and connected by top and bottom tie-rods A³ and A⁴, nuts A⁵ being applied to the threaded extremities of the rods and screwed against suitable washers A⁶, which are located in recesses A⁶, formed in the lower extremities of the beams A², or engage flattened portions A⁷ thereof, as shown at the top of the tank in Fig. 1 of the drawings. In the bottom of this V-shaped tank and extending longitudinally thereof is a strip A⁸, forming a support for the lead conduit B, provided with vertically-disposed nozzles B', which may be

provided with the porcelain tips B² or not, as may be desired. In any event, these nozzles are provided with central vertically-disposed orifices through which the fluid introduced into the conduit B under pressure is directed upwardly into the contents C of the tank in vertical jets, whereby the ore in the tank is held in suspension in the liquid or pulp with which it is mingled. The length of the nozzles B' is such that the fluid is compelled to escape from the nozzles in upright or perpendicular jets, and this result is necessary in order to maintain the suspension of the ore particles in the tank, this suspended condition being required in order to get proper leaching results, since by keeping the ore particles in suspension the packing of the ore in the tank is prevented and the leaching solution thereby is given the best possible chance to act upon the ore particles, since the said particles are continually surrounded by and in direct contact with the dissolving solution or liquid.

Having thus described my invention, what I claim is—

1. In a leaching apparatus, the combination of a tank V-shaped in cross-section, and a lead conduit located in the bottom of the tank and provided with vertically-disposed orificed nozzles, the said nozzles being of sufficient length to cause the fluid introduced into the conduit to be carried upwardly into the tank in vertical jets or streams.

2. In a leaching apparatus, the combination of a tank V-shaped in cross-section and pro-

vided with a longitudinally-disposed soft-metal conduit located in the bottom of the tank and provided with vertically-disposed orificed nozzles, the said nozzles having tips of harder material applied thereto, substantially as described and for the purpose set forth.

3. The combination of a V-shaped tank provided with a lead conduit located in the bottom of the tank and extending the entire length thereof, the said conduit being provided with orificed nozzles located in a straight line, the said nozzles having tips of harder material for the purpose set forth.

4. The combination with a V-shaped tank provided with a conduit located in the bottom of the tank, the said conduit being provided with upwardly-projecting orificed nozzles.

5. The combination of a V-shaped tank provided with a conduit located in the bottom of the tank and extending the entire length or approximately the entire length thereof, the said conduit being provided with upwardly-projecting orificed nozzles radially disposed with reference to the axis of the conduit.

6. The combination with a tank, of a conduit located in the tank and provided with upwardly-projecting orificed nozzles having tips of harder material than the body of the nozzles.

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

CHAUNCEY E. DEWEY.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.