

(No Model.)

J. SYMONS.
HYDRAULIC ORE SIZER.

No. 390,717.

Patented Oct. 9, 1888.

FIG. 1.

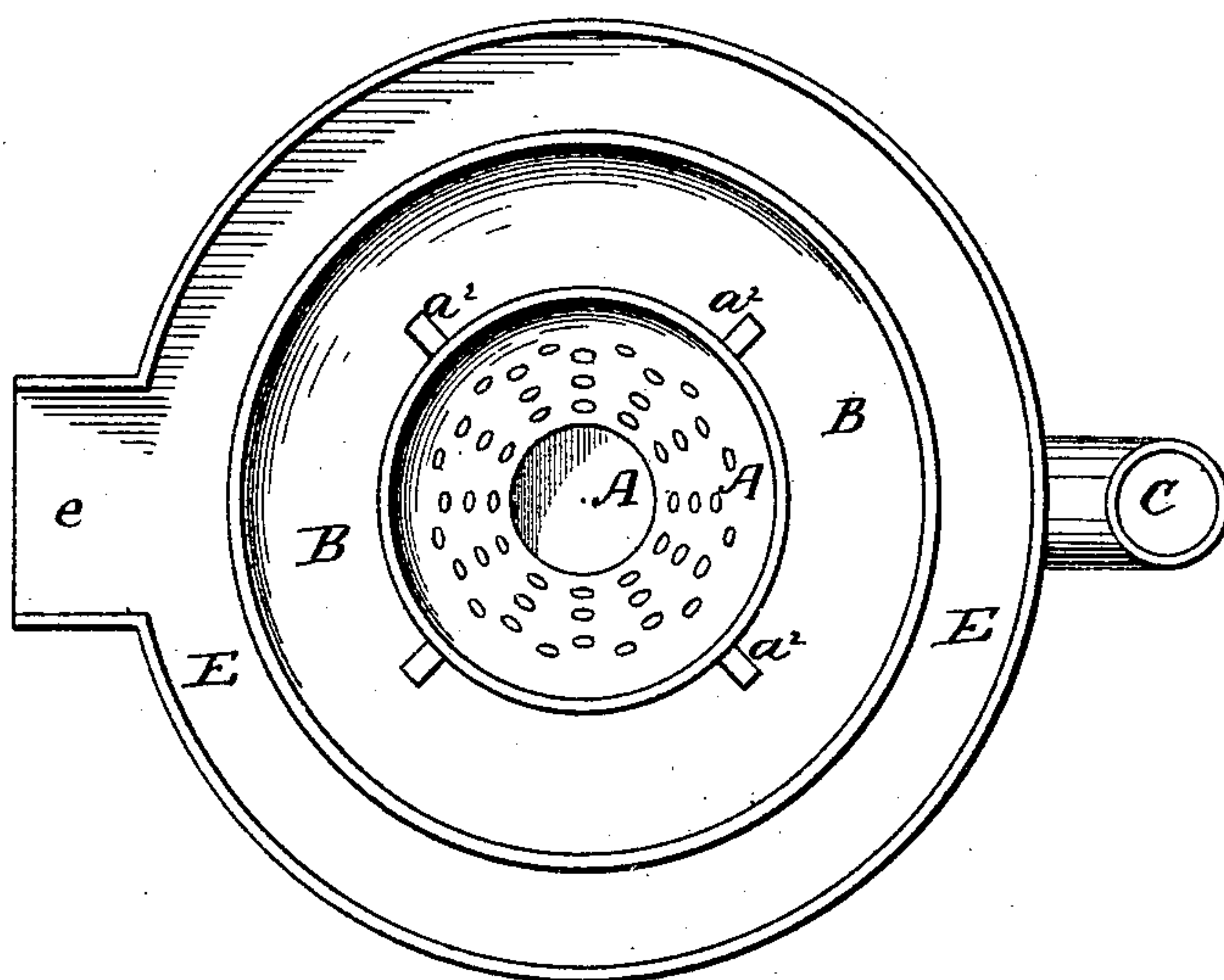


FIG. 2.

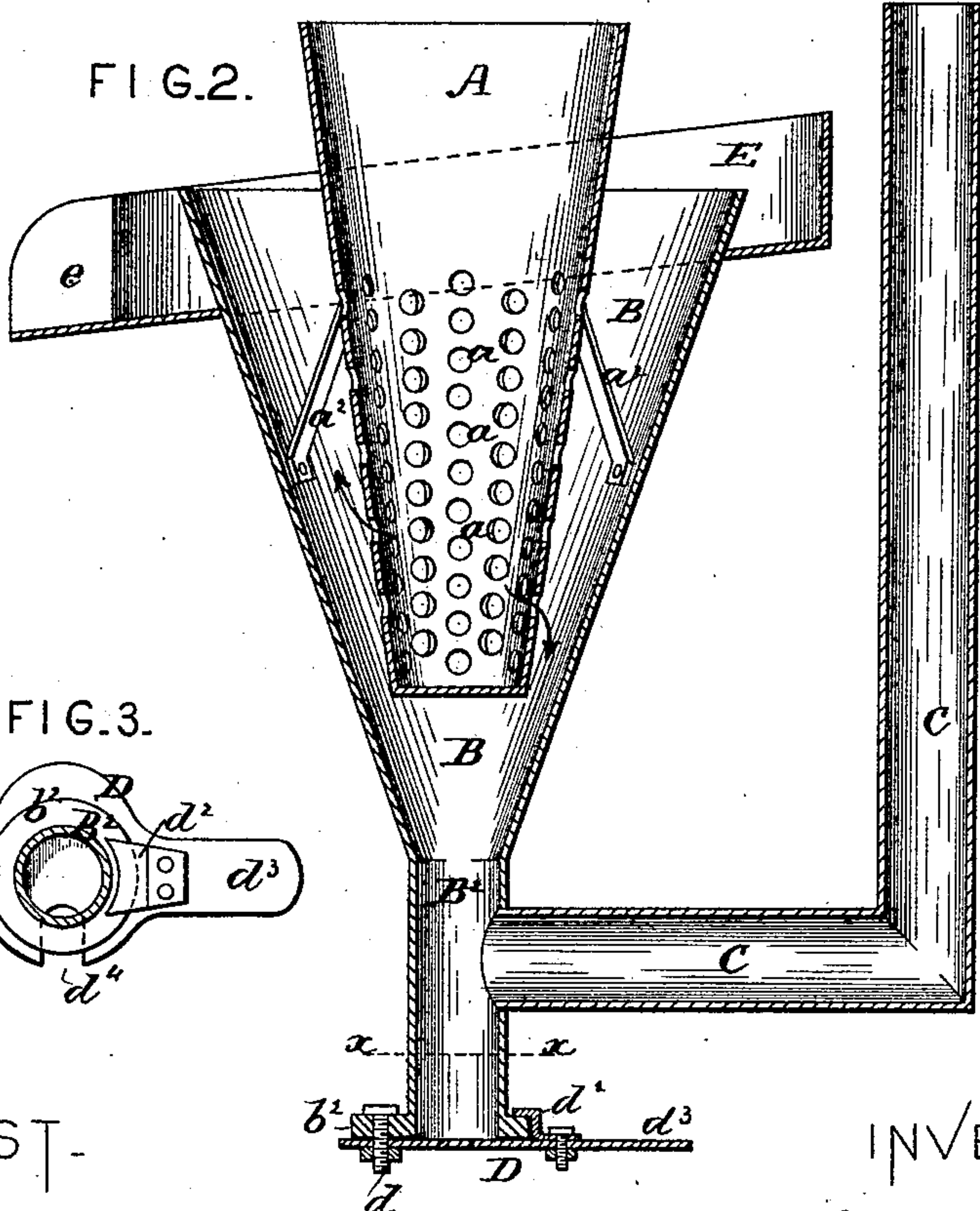
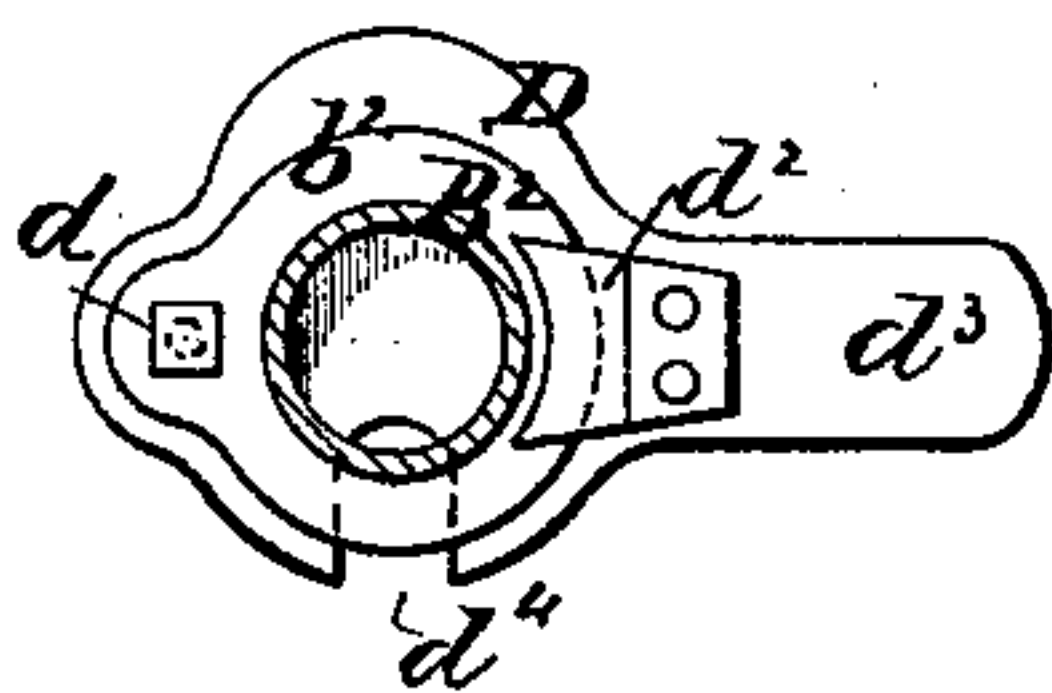


FIG. 3.



ATTEST-

Harry L. Amerl
J. J. Masson

INVENTOR.

James Symons,
by E.E. Masson,
atty.

UNITED STATES PATENT OFFICE.

JAMES SYMONS, OF ILSE, COLORADO, ASSIGNOR OF TWO-THIRDS TO JOHN B. SAMPSON, OF SAME PLACE, AND JOHN N. PALMER, OF DENVER, COLORADO.

HYDRAULIC ORE-SIZER.

SPECIFICATION forming part of Letters Patent No. 390,717, dated October 9, 1888.

Application filed February 1, 1888. Serial No. 262,592. (No model.)

To all whom it may concern:

Be it known that I, JAMES SYMONS, a citizen of the United States of America, residing at Ilse, in the county of Custer and State of Colorado, have invented certain new and useful Improvements in Hydraulic Ore-Sizers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in ore-sizers for separating granular substances and minerals of different specific gravity by agitating them in a current of water while inclosed in a suitable receptacle; and the objects of my improvement are to produce a simple and inexpensive machine of this class easily controlled in its operation. I accomplish these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a machine constructed in accordance with my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section of the discharge-pipe on line x of Fig. 2, showing a top view of the discharge-regulating valve.

In the drawings, A represents a conical receiver, into which the ground ore is conducted in any suitable manner. It has a closed bottom; but perforations a are provided in the sides thereof for the gradual escape of the material acted upon, said escape being caused by a current of water admitted in a conical funnel, B, surrounding the receiver A, but having its walls at a suitable distance therefrom to allow a current of water to pass between them. For that purpose the receiver A is retained suspended in the interior of the conical funnel B by means of radiating braces a^2 . The lower end of this funnel terminates in a vertical pipe, B^2 , receiving on one side thereof one end of the pipe C, through which water received from a suitable height or under pressure is brought into the apparatus.

The lower end of the vertical pipe B^2 is provided with a flange, b^2 , to the under side of which is pivoted the gate D upon a bolt, d , passing through said flange. This bolt retains one end of the gate in close contact with the under side of said flange, and the opposite end is similarly retained in contact with the flange by a clip, d^2 , riveted to the top of the

gate, and having its upper flange resting upon the flange b^2 of the pipe. The gate is provided with a side projecting handle, d^3 , to operate it, and it has an opening, d^4 , in its side that can be made to more or less coincide with the opening in the lower end of the pipe B^2 , through which the ore and clear water are discharged. The upper end of the outer funnel, B, is surrounded by an inclined trough, E, to receive the fine sand and slime carried upward by the current of water, and from which it is conducted through the opening e in the side thereof to the slime-tables for further treatment.

By this construction the pulp or ore is evenly distributed and penetrated by the water. The heavy mineral falls to the bottom of the vertical pipe B^2 , and escapes through the regulable opening d^4 in the gate; but said opening is entirely closed when the machine is not in operation. The light or fine ore escapes through the perforations a and is discharged by overflowing upon the trough E.

Having now fully described my invention, I claim—

1. The combination of a conical receiver having rows of perforations all around the sides thereof, supports for said receiver, a conical funnel surrounding said receiver, and a trough surrounding the upper end of the latter on a lower level than the top of the receiver, with a pipe, B^2 , in the lower end of the said funnel and gate therein, and a water-conducting pipe entering the side of said pipe B^2 above said gate, substantially as and for the purpose described.

2. The combination of a conical receiver having perforations all around its sides, a conical funnel surrounding it, radiating braces uniting said receiver and funnel, and a trough surrounding the latter, with a water-conductor, C, and a pipe, B^2 , in the lower end of said funnel, substantially as and for the purpose described.

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

JAMES SYMONS.

Witnesses:

A. GORE,
H. S. CURRIE.