

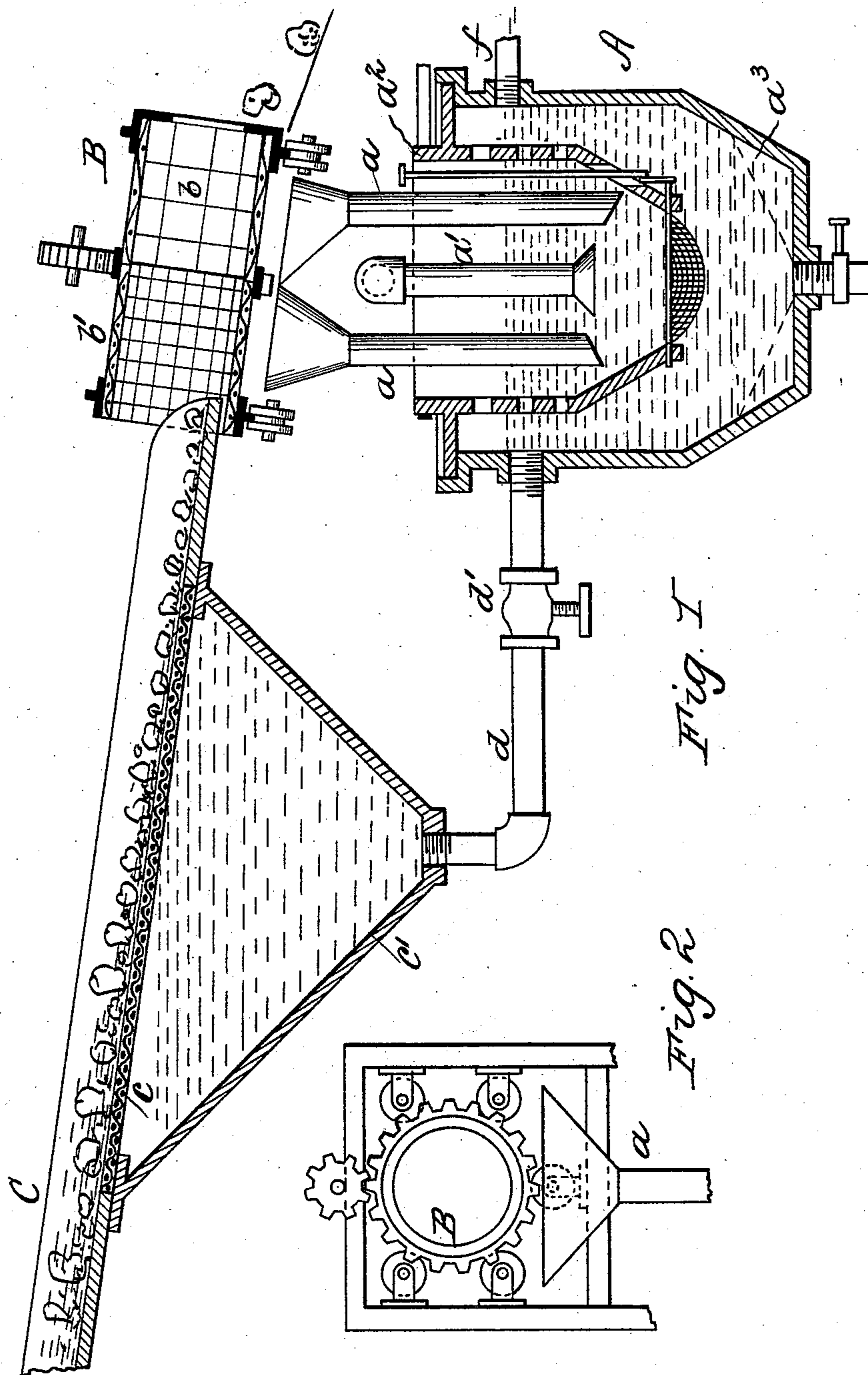
(No Model.)

4 Sheets—Sheet 1.

C. F. PIKE.
ORE WASHER OR CONCENTRATOR.

No. 528,974.

Patented Nov. 13, 1894.



WITNESSES:
K. Van Stavoren.
L. Van Stavoren.

INVENTOR
Charles F. Pike
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Attorney

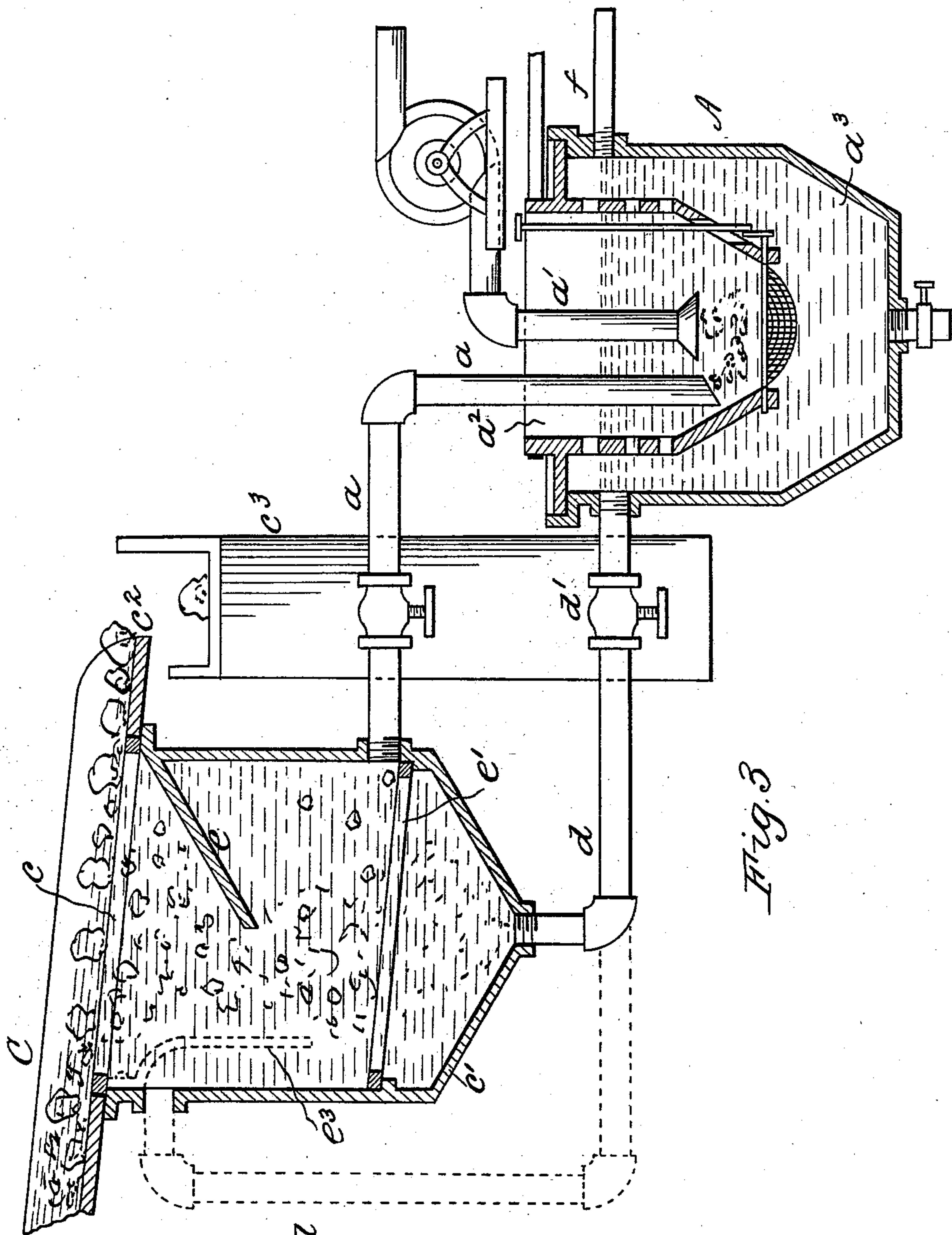
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(No Model.)

4 Sheets—Sheet 3.

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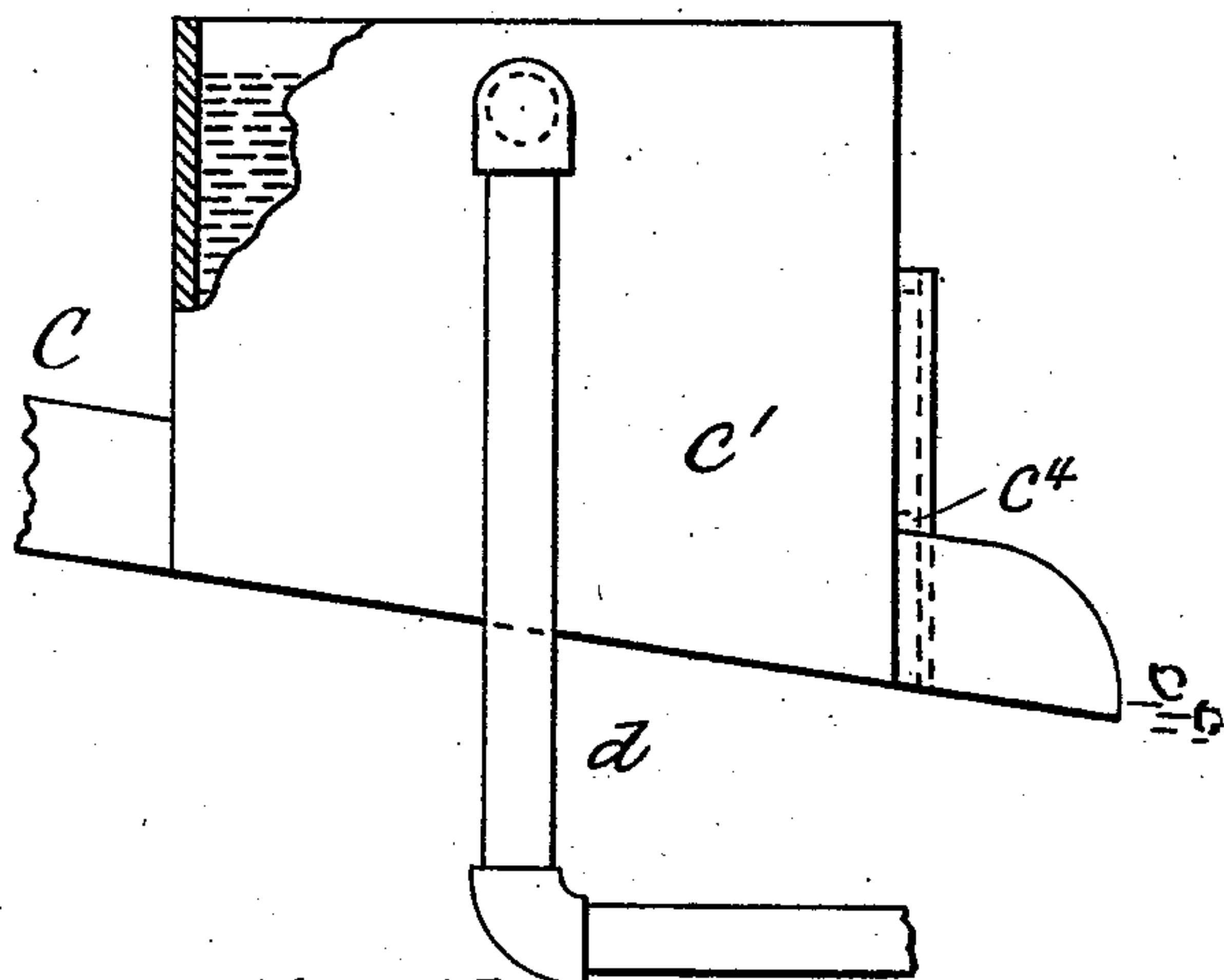


Fig. 4

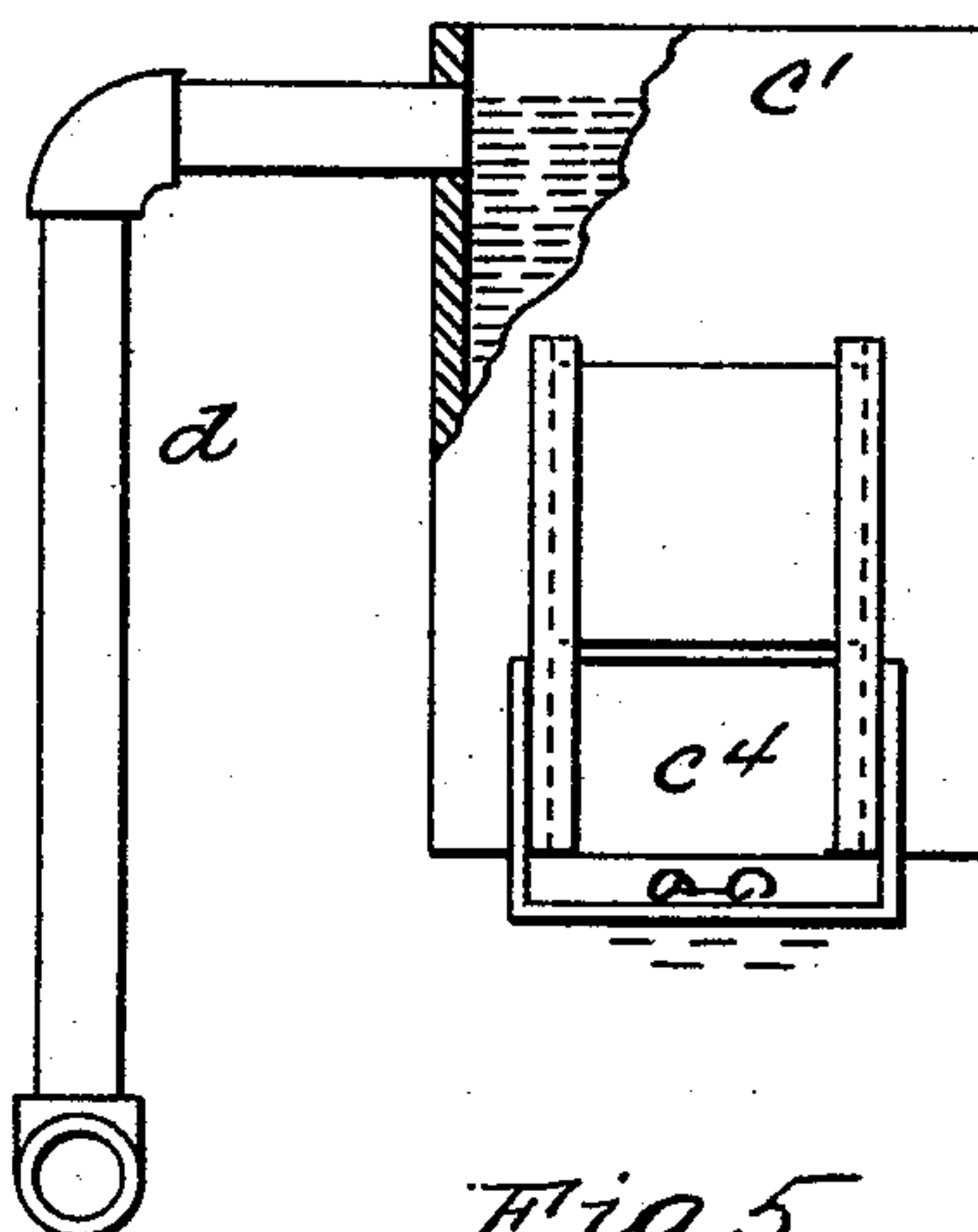


Fig. 5

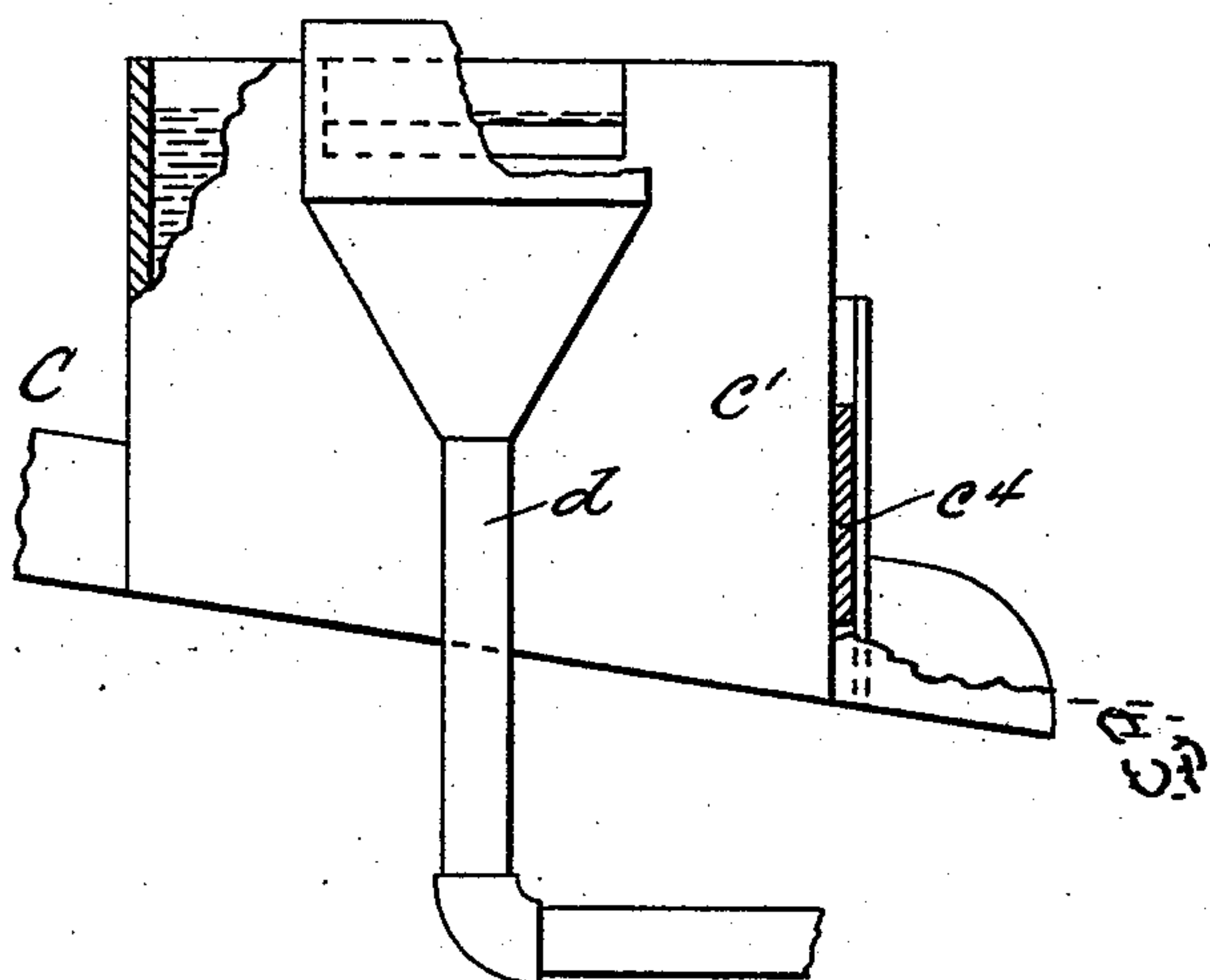


Fig. 6

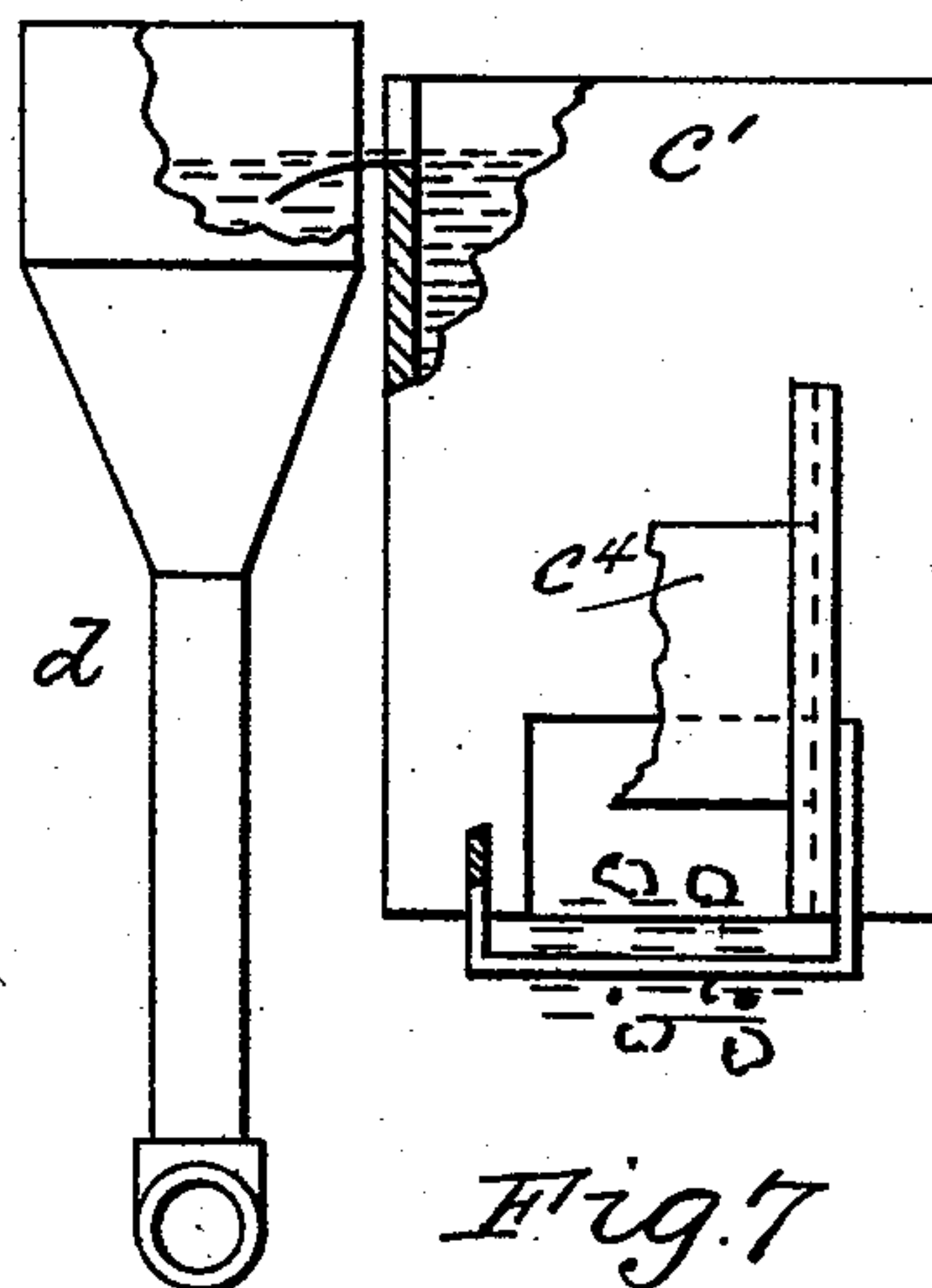


Fig. 7

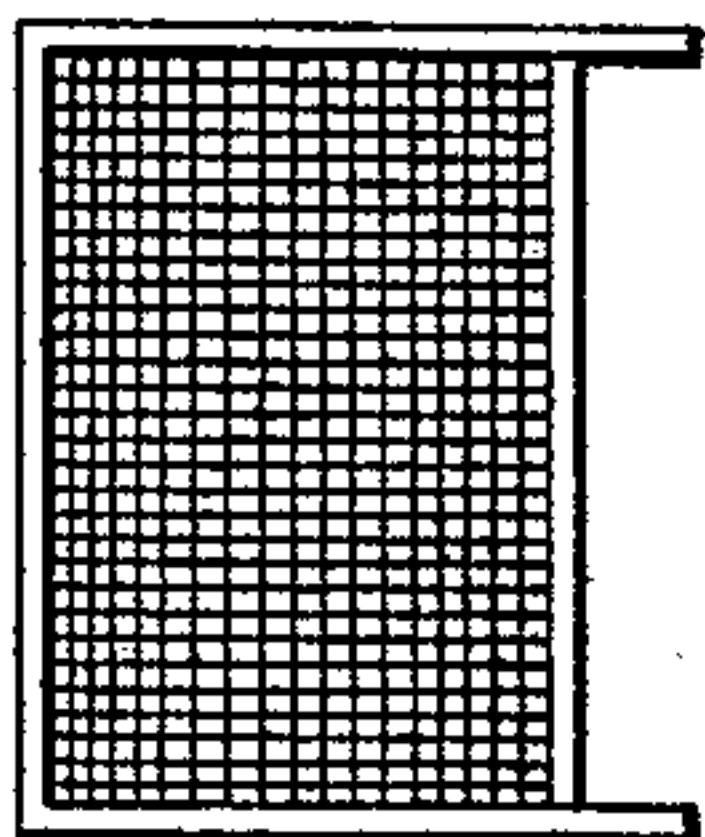


Fig. 8

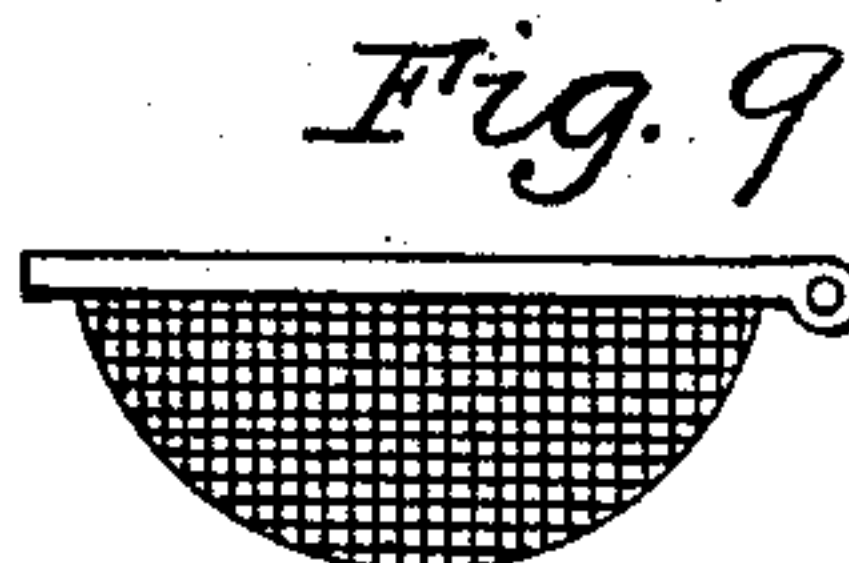


Fig. 9

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(No Model.)

4 Sheets—Sheet 4.

C. F. PIKE.
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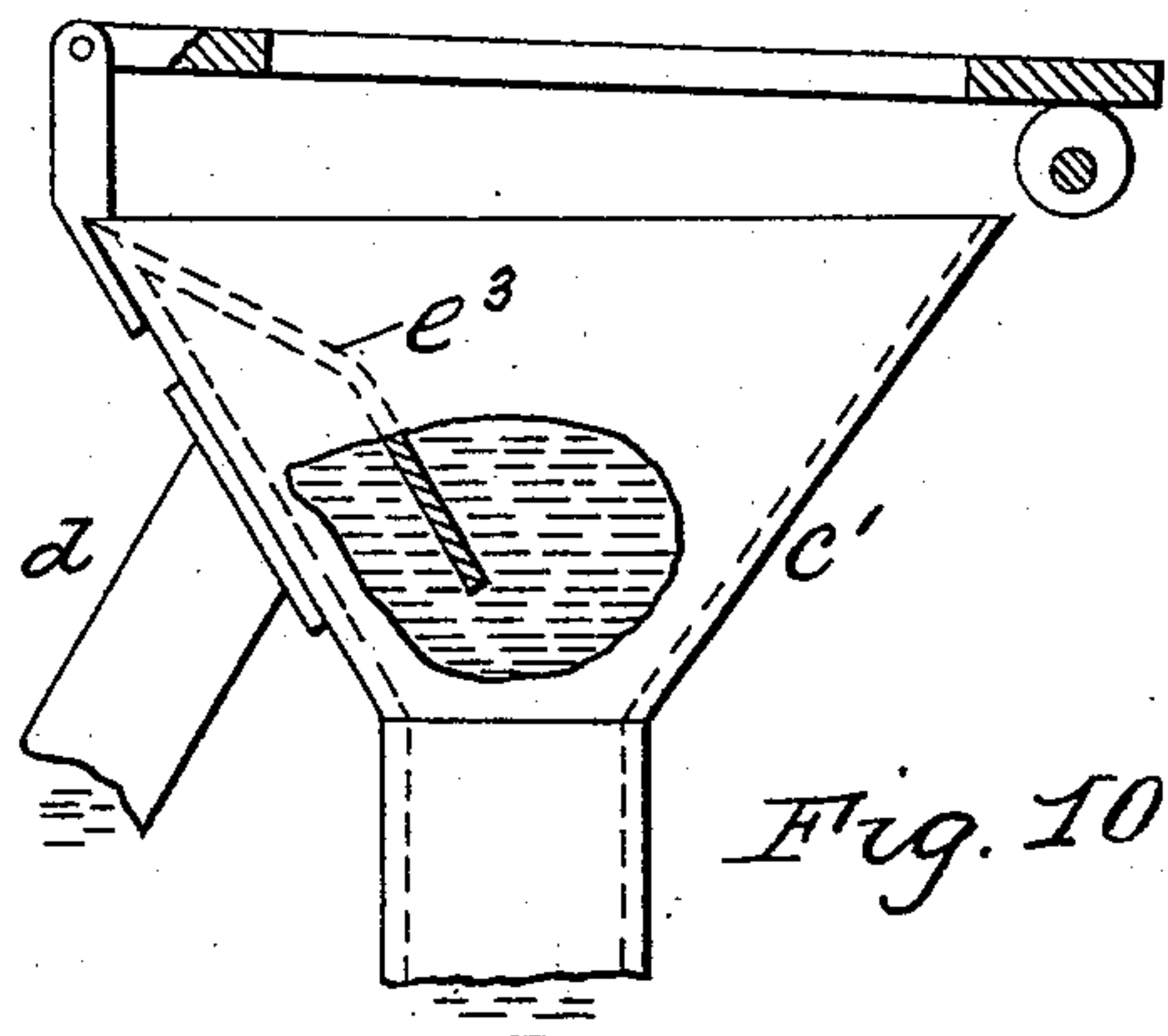


Fig. 10

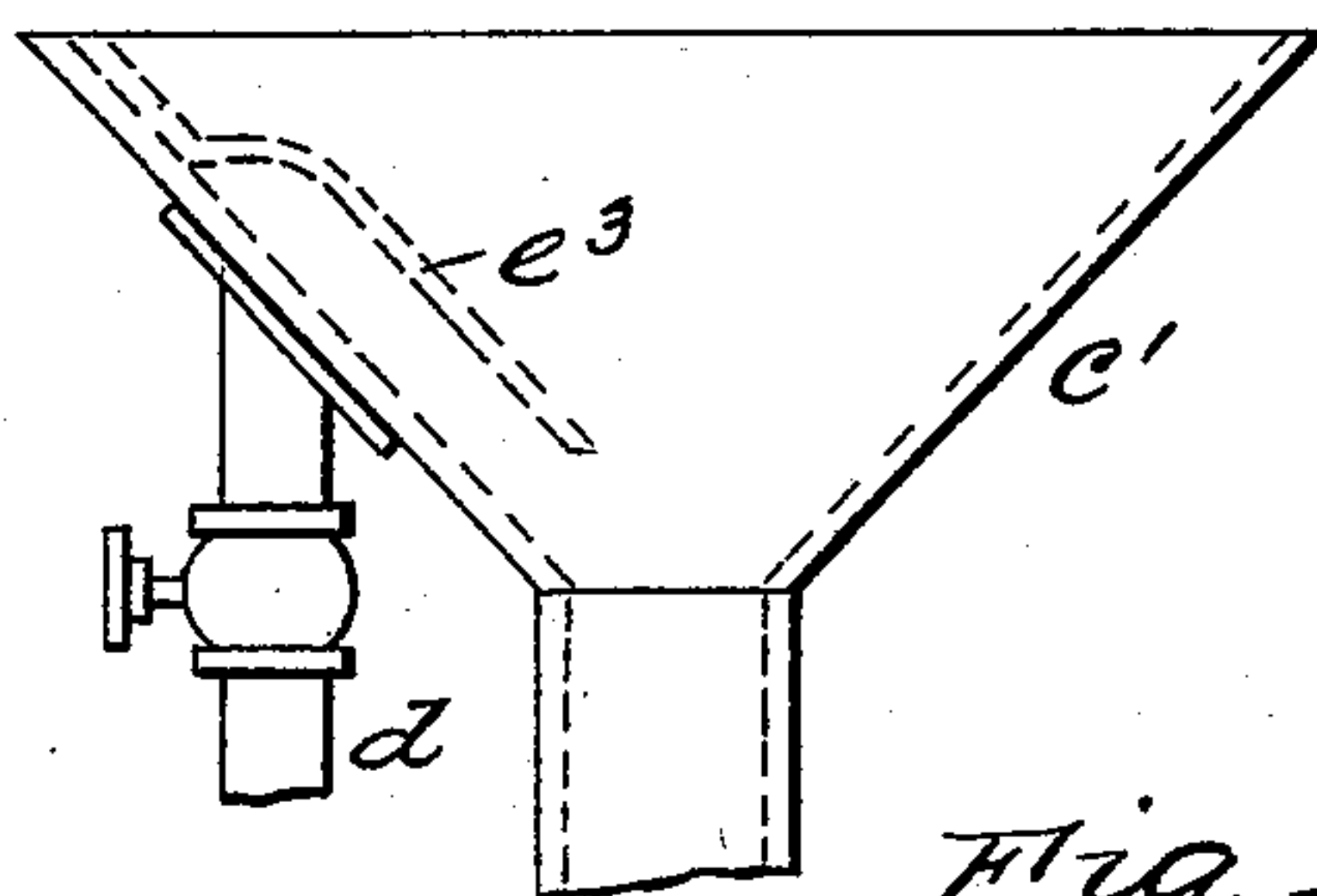


Fig. 12

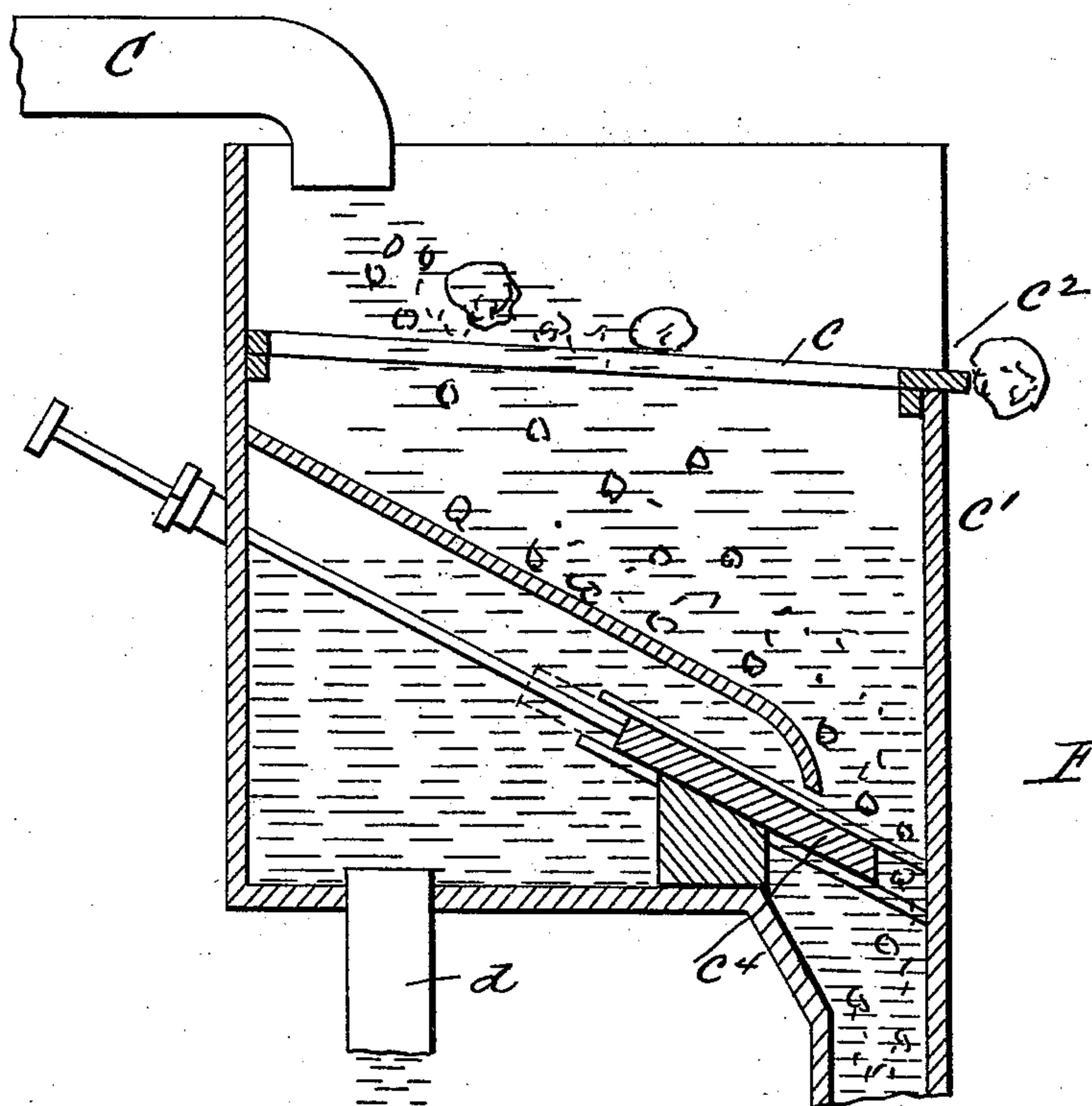


Fig. 11

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UNITED STATES PATENT OFFICE.

CHARLES F. PIKE, OF PHILADELPHIA, PENNSYLVANIA.

ORE WASHER OR CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 528,974, dated November 13, 1894.

Application filed June 10, 1893. Renewed April 17, 1894. Serial No. 507,939. (No model.)

to all whom it may concern:

Be it known that I, CHARLES F. PIKE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ore Washers or Concentrators; and I do hereby 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.

My invention has relation to ore washers or concentrators of the form having a feed and a suction or forcible discharge; and it has for its object to adapt the same to a flume supply for handling economically, thoroughly, and efficiently large bulks of ore or gangue.

My invention accordingly consists of the combinations, constructions and arrangements of parts as more fully described in the specification and pointed out in the claims.

Reference is had to the accompanying drawings, wherein—

Figure 1 is an elevation partly sectional of a form of washer and a flume supply embodying my improvements. Fig. 2 is an end view of rotating screen and its support interposed between the flume and washer. Fig. 3 is a view similar to Fig. 1, illustrating another form of screen between the flume and washer.

Figs. 4, 5, 6, and 7 are sectional elevations of still other different forms of screens or separators interposed between the flume or supply and the washer. Figs. 8 and 9 are respectively, a plan and side elevation of a perforated hinged bottom for the receiving vessel of a washer of the forms shown in Figs. 1 and 2. Figs. 10 and 11 are sectional elevations partly sectional of additional forms of screens or separators between the supply and the washer, and Fig. 12 is an elevation showing a modification of separator indicated in Fig. 10.

A in Figs. 1 and 3 represents a form of ore-washer or concentrator having supply tubes *aa* for feeding into the washer different grades of ore or gangue, a suction or other discharge appliance *a'*, a suitably constructed chamber *a³*, and rotating screen B, see more plainly Fig. 2, having different

meshes *b b'* constructed and arranged for operation substantially as shown, described and claimed in a pending application filed by me of an even date herewith, Serial No. 477,164.

C represents an ore supply chute or flume which may be suitably located relatively to the feed device *a* of the washer or concentrator A as desired or the demands of service require. In Fig. 1 its discharge end is shown entering the screen B for the feed devices *a a*. In Fig. 3 such flume is indicated discharging into a receptacle *c'* to be hereinafter described while large waste-matters pass off of its terminal end. Said flume is at any suitable location along its length provided with a perforated or other grating or screen *c* below which is a chamber *c'* having a pipe connection *d* with a valve *d'*, with washer A or its chamber *a³* to provide an inflow of water to the washer it having if desired a suitable overflow pipe *f*.

The object of providing the screen *c* and chamber *c'* with supply pipe *d* for the washer is to admit of utilizing a part of the flow-water on the flume as a supply for the upward or otherwise directed current in chambers *a³* and *a²* of the washer for agitating the ore or gangue fed to chamber *a²* from tubes *a a*.

In Fig. 3, the rotating screen B is dispensed with, the large useless bulky material passing off of the end of the flume at *c²* and conveyed away from the machine by a chute *c³*. The chamber *c'* is provided with a deflecting partition *e* and a grating or perforated plate *e¹* for preventing any gangue or ore passing to the chamber *a³* of washer A. The outlet pipe *d* may lead out from the bottom of chamber *c'* as shown in full lines in Fig. 3 or from near the top of same as indicated by dotted lines. In the latter case the opening of the outlet pipe *d* is protected by a deflecting plate *e³*.

In Figs. 6, 7, 8, and 9 the flume or supply chute C is shown terminating in a box or large receptacle *c'* above the flume and without screen but having a gate or valve *c⁴*, and said figures show various ways of locating and arranging pipe *d*.

Fig. 12 shows a funnel shaped screen or separator having pipe *d* attachment, and the box *c'* has a screen and bulky material outlet with

valve c^4 for regulating the discharge of gangue or ore to the feed tubes for the washer.

From the foregoing it will be noted that the ore or gangue in the water on the flume or chute C is conducted to the feed devices a of the washer and that part of the water on the flume which is most devoid of sand is conducted by a separate pipe d to the chamber a^3 of said washer for supplying the inward and upward current from the outer chamber a to the inner receiving chamber a^2 of the washer for effecting agitation of the ore or gangue supplied to chamber a^2 ; that in some of the forms of construction the water from the flume for pipe d has more or less of the light material of the ore or gangue mixed with it. I prefer however the use of the first above described arrangements or that in which the feed water from the flume for pipe d is devoid as near as may be of any solid matters of the ore or gangue.

As it is obvious that the construction and arrangement of the novel features and operations herein described by me may be changed without departing from the spirit of the invention, I do not confine myself to the same as shown and described.

What I claim is—

1. In combination with an ore washer or concentrator having a feed device and a suction discharge device, of a flume or chute leading to said feed device, and a pipe connection between the washer and the flume or chute for conducting part of the water on the

flume to the washer for agitating the ore or gangue supplied to the washer by its feed device, substantially as set forth,

2. In combination with an ore washer or concentrator having a feed device and a suction discharge, of a flume or chute having a valve at its discharge end for controlling the flow of ore or gangue and water from the chute to the feed device for the washer, of a pipe with valve between the washer and the water level on the flume for providing a separate water supply from the flume to the washer for agitating the ore or gangue supplied to it by its feed device, substantially as set forth.

3. In combination with an ore washer or concentrator having a feed device, a flume or chute C leading to said feed device, a controlling gate or valve at the exit end of said flume, and a conduit leading from the water level on the flume to the washer or concentrator, substantially as set forth.

4. In combination with an ore washer or concentrator, a flume or chute C having an exit end controlling gate, and connection from above the bottom of said flume to the washer or concentrator, substantially as set forth.

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

CHARLES F. PIKE.

Witnesses:

THOS. S. RODGERS,
JAMES T. DAILY.