

No. 690,840.

Patented Jan. 7, 1902.

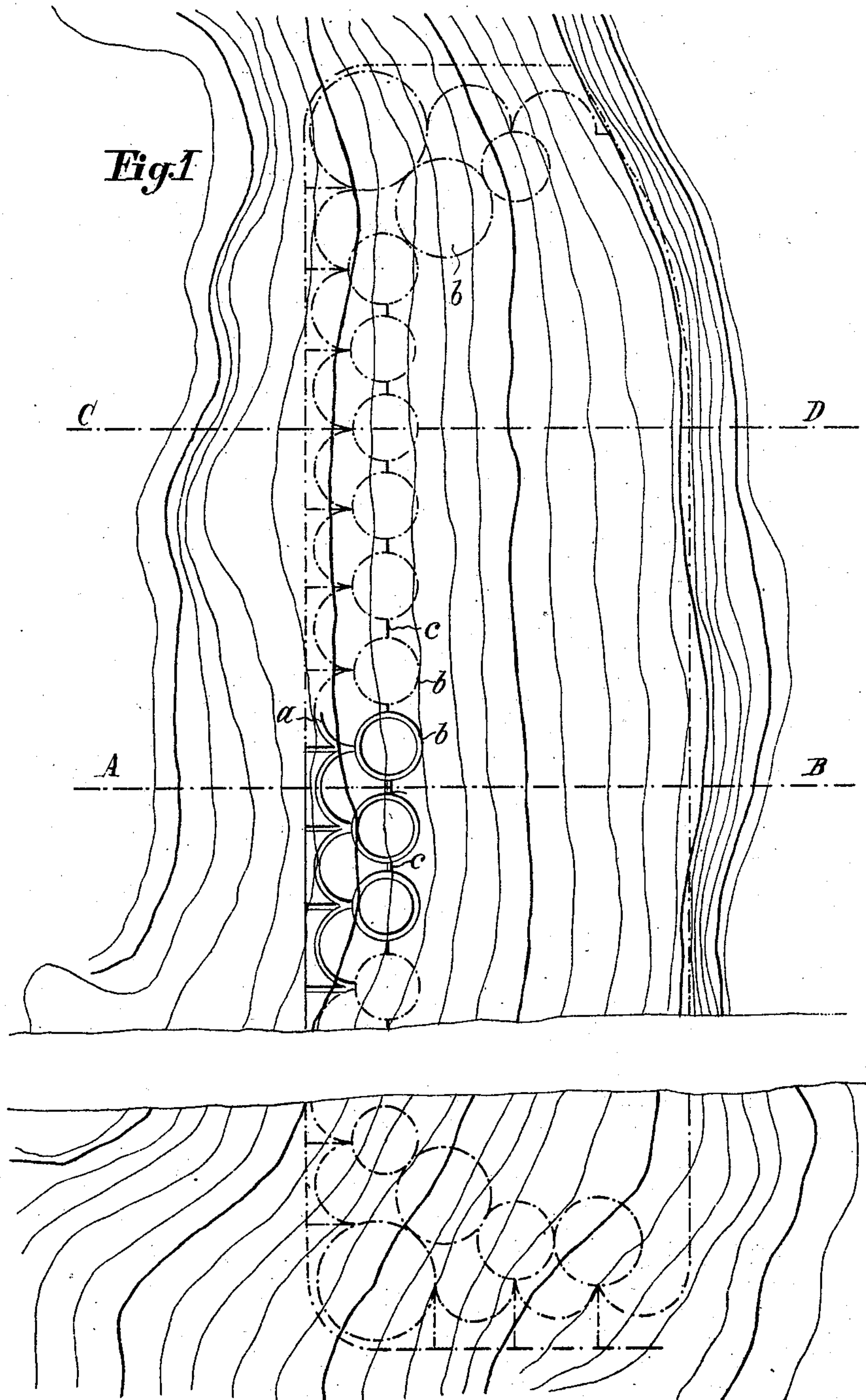
J. DAIME.

STRENGTHENED CAST CEMENT.

(Application filed Aug. 3, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

F. O. Parker

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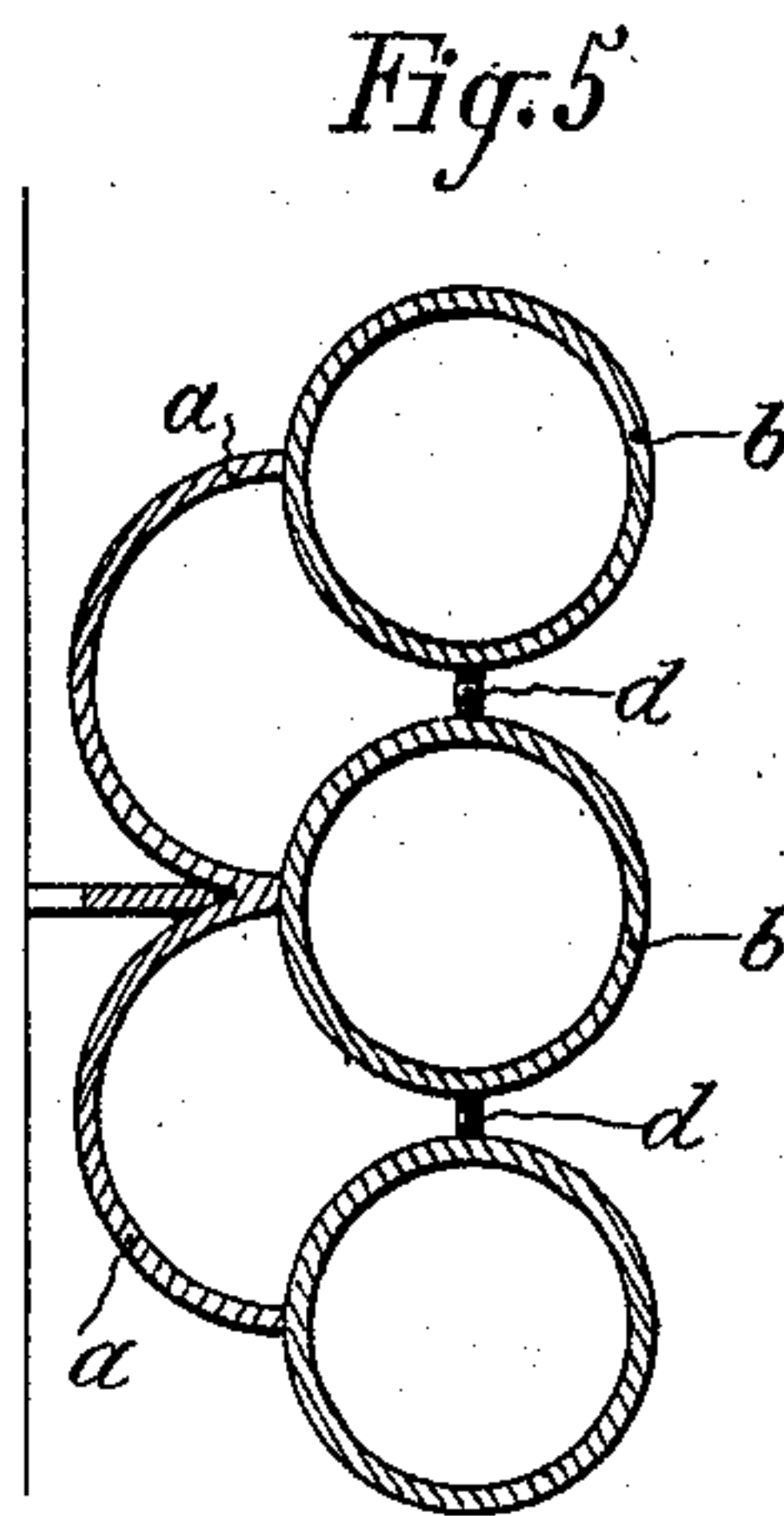
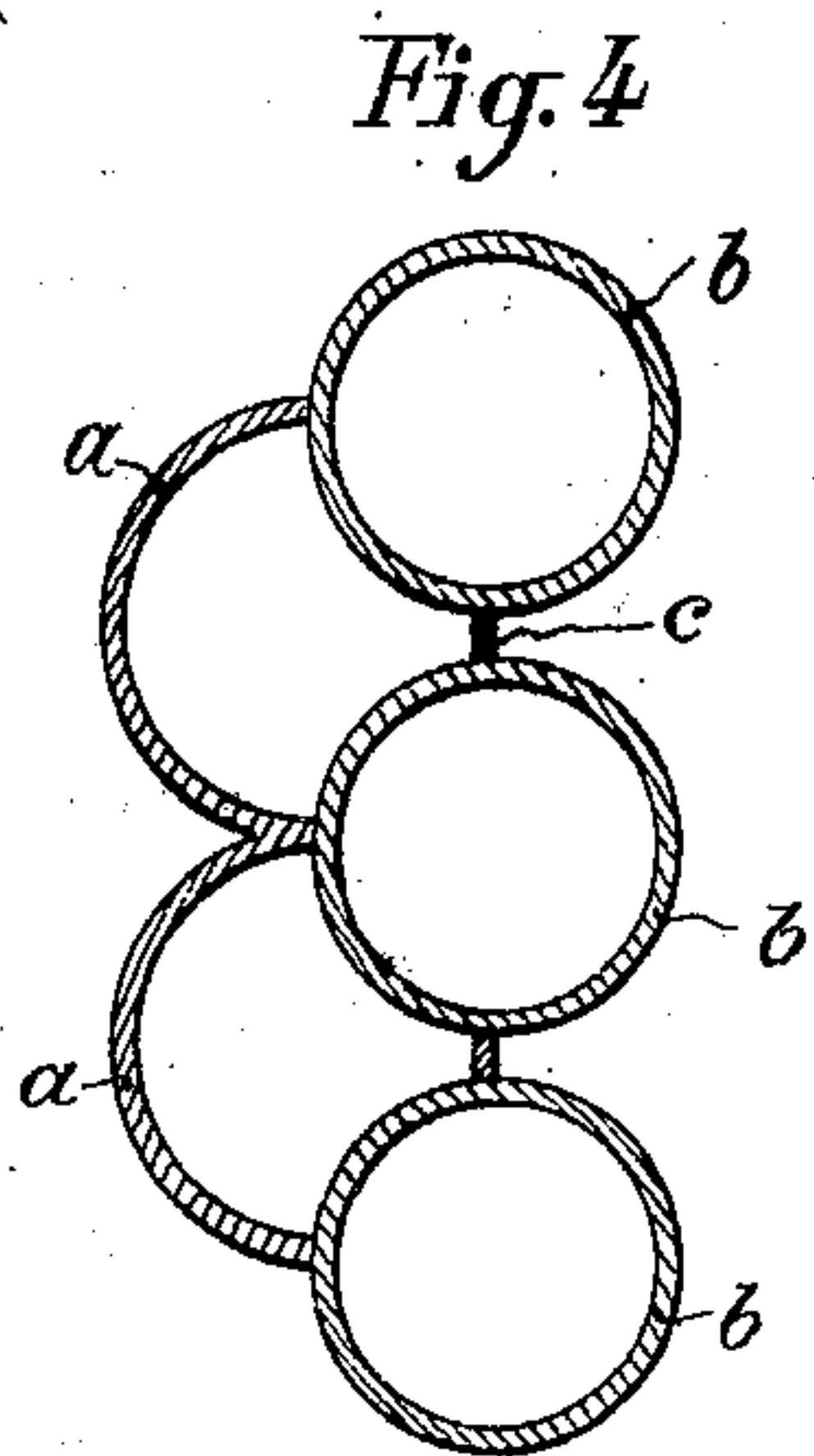
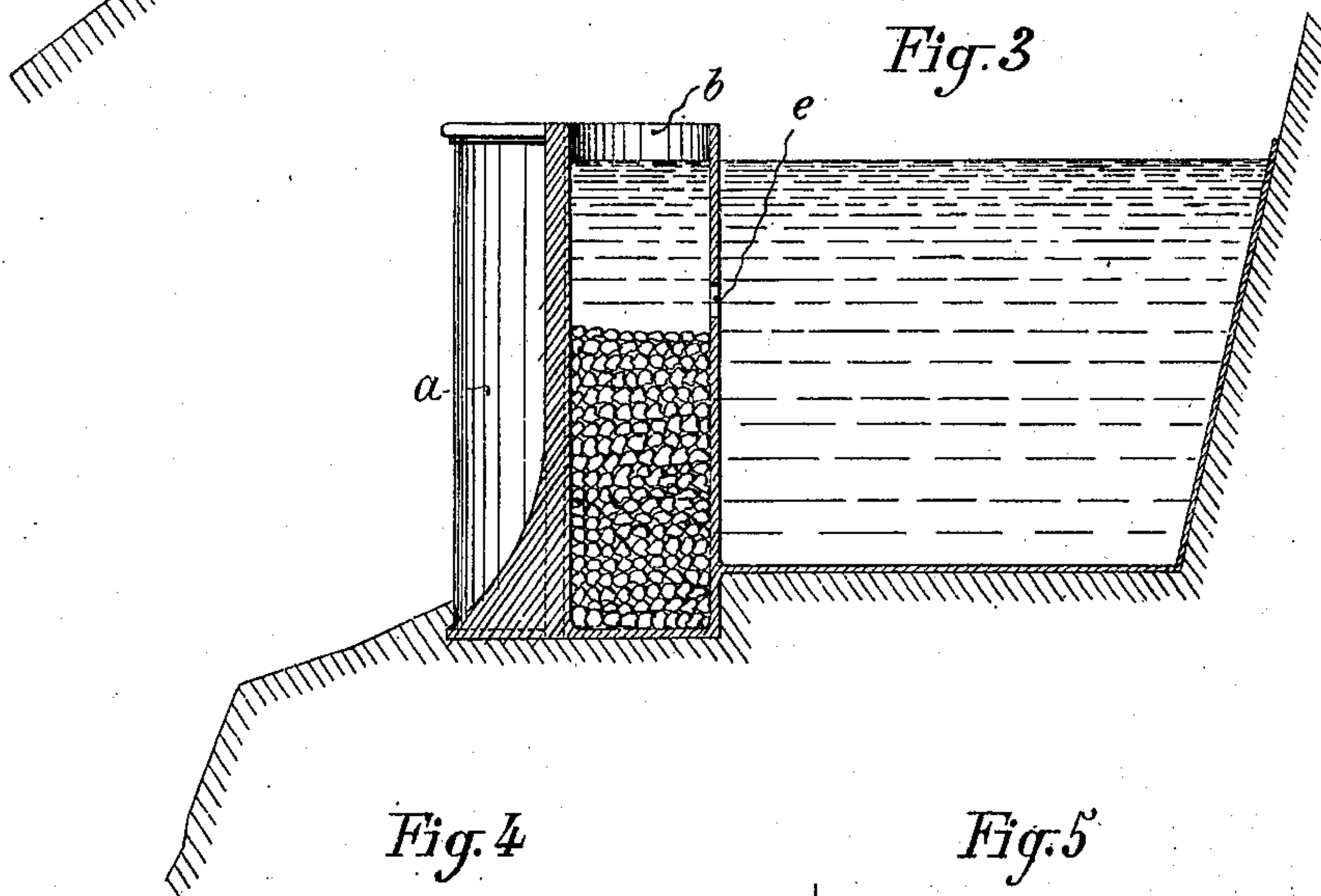
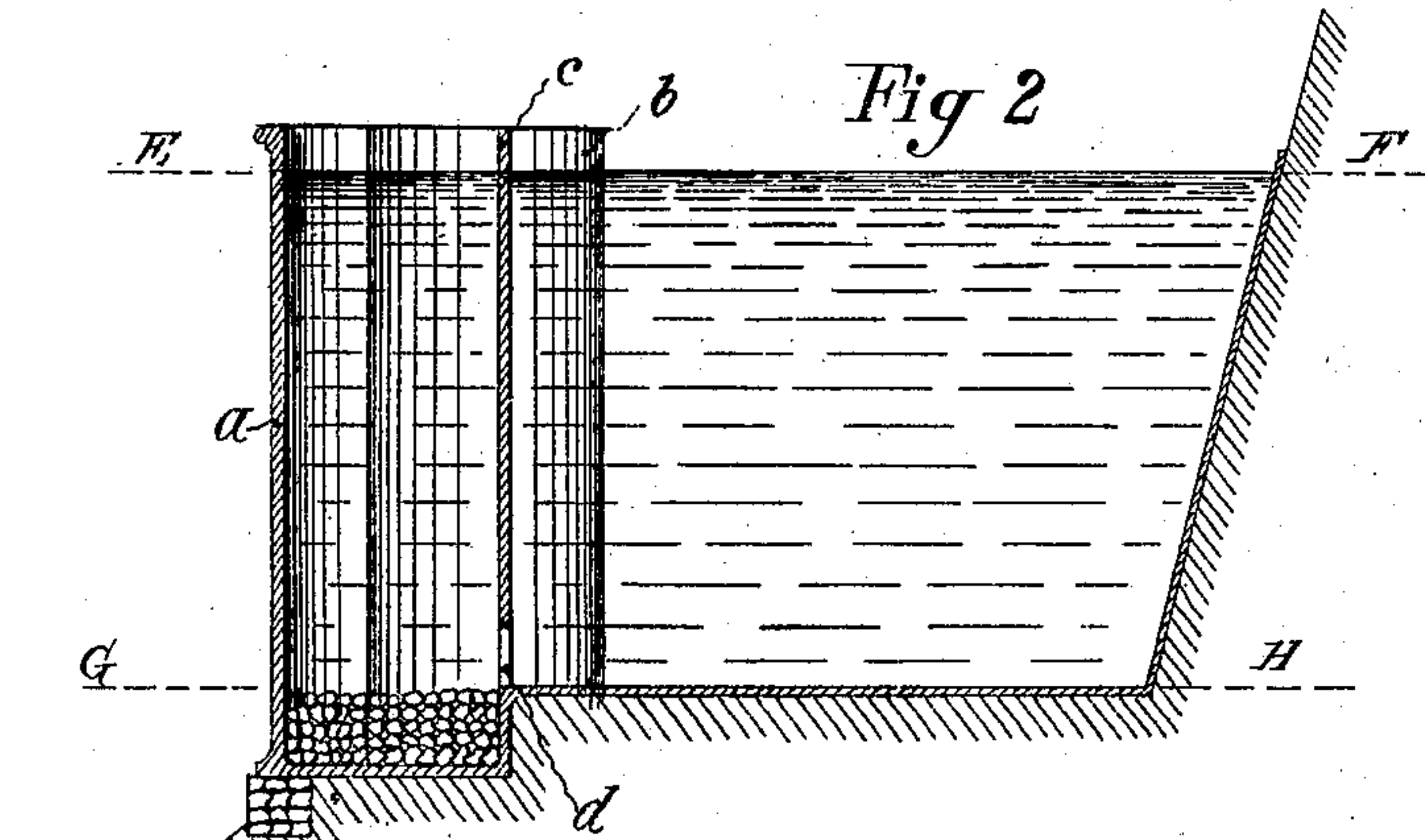
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(No Model.)

3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 6



Fig. 7

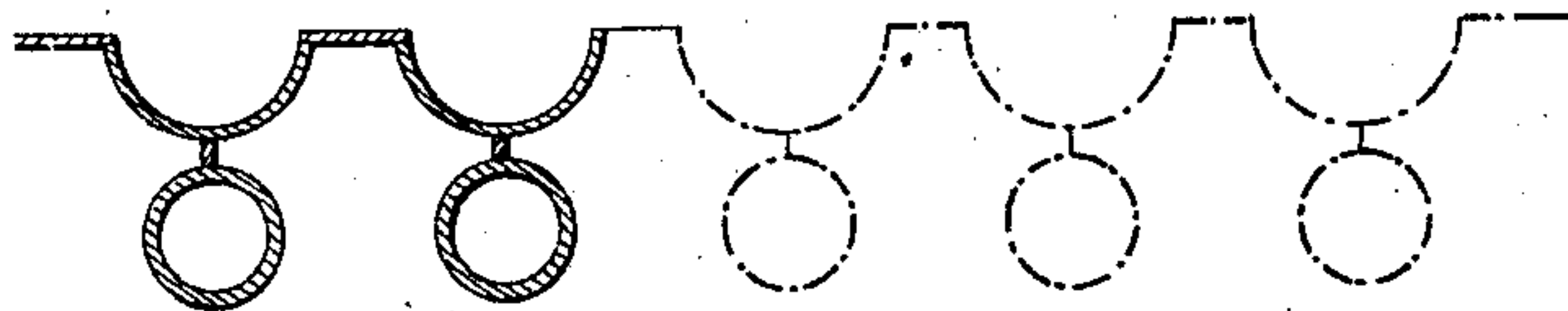


Fig. 8

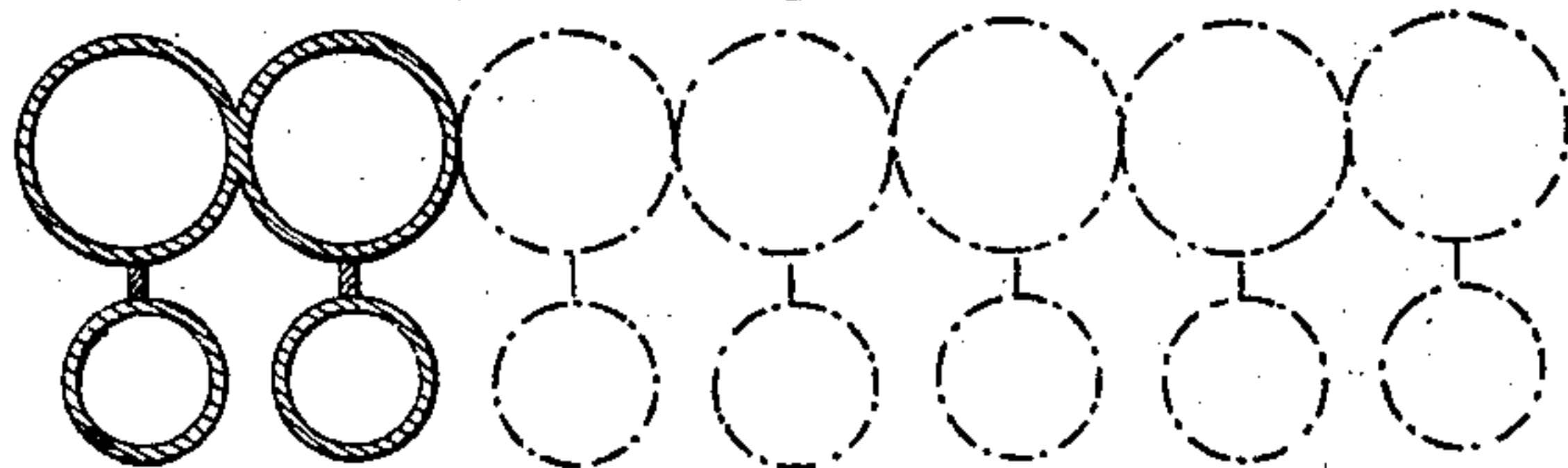


Fig. 9

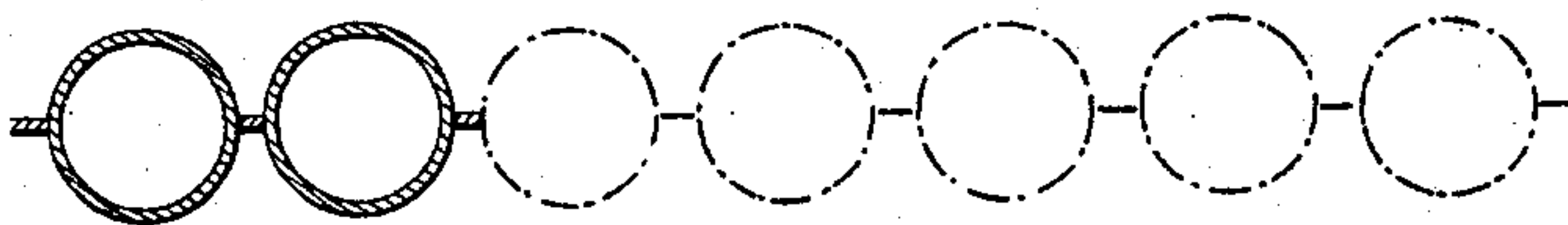


Fig. 10

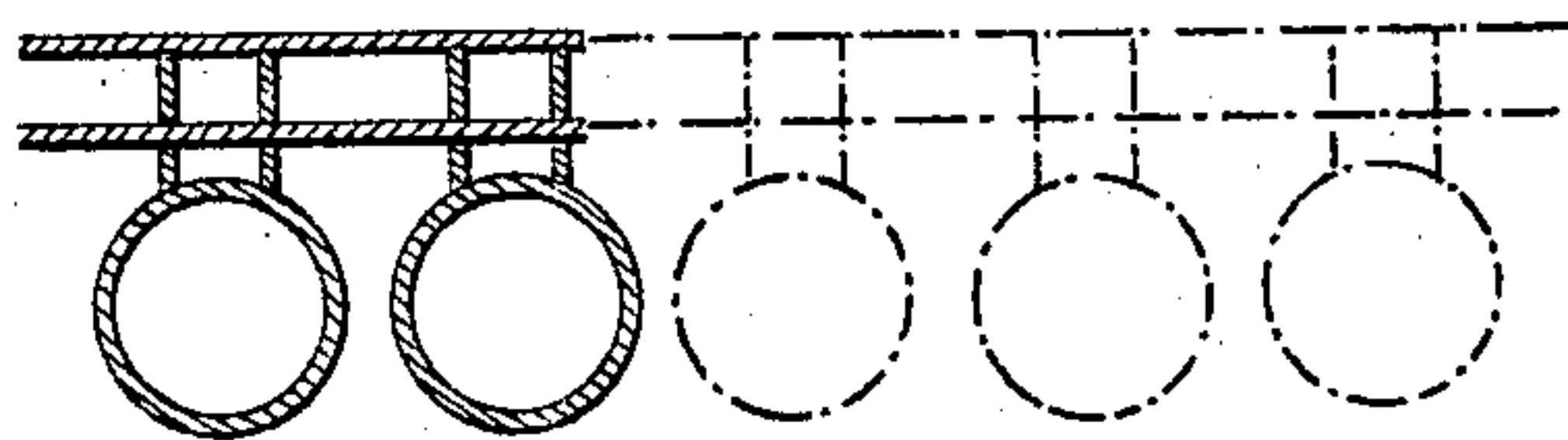


Fig. 11



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UNITED STATES PATENT OFFICE.

JOSEPH DAIME, OF MARSEILLES, FRANCE.

STRENGTHENED CAST CEMENT.

SPECIFICATION forming part of Letters Patent No. 690,840, dated January 7, 1902.

Application filed August 3, 1901. Serial No. 70,821. (No specimens.)

To all whom it may concern:

Be it known that I, JOSEPH DAIME, a citizen of France, residing at 38 Rue Consolat, Marseilles, France, have invented certain new and useful Improvements in Strengthened Cast Cement, of which the following is a specification.

This invention relates to a new system of constructing reservoirs, dikes, barrages, sustaining-walls, and, in general, all works subject to a heavy lateral pressure, by employing strengthened cement and beton such as at present known—i. e., cement cast around a network or skeleton of iron bands or wires—
15 with an essentially new arrangement deduced from a theory not yet applied to works in strengthened cement and offering considerable industrial advantages over the old types adopted for these purposes, such as increased
20 stability and security, better utilization of the emplacements, and economy of construction.

My invention consists in counteracting in works of the design about to be described the lateral pressure or thrust of the liquids or of
25 the earth not by means of struts, buttresses, or supports as up till now employed, but really by the employment of counterweights attached to the walls and opposing by their mass the overturning or collapse of the same.

30 In the annexed drawings, Figure 1 shows in plan a reservoir constructed according to my system. Fig. 2 is a section on the line A B, Fig. 1. Fig. 3 is a section on the line C D, Fig. 1. Fig. 4 is a section on the line
35 E F, Fig. 2. Fig. 5 is a section on the line G H, Fig. 2. Figs. 6 to 11 represent some modifications.

The figures represent a reservoir of water adapted to be established on the side of a
40 slope or declivity. The inclosing wall is composed of vertical half-cylinders *a*, concave toward the slope of the reservoir and touching one another along their extreme vertical edges. This inclosure is entirely composed
45 of strengthened cast cement very much reduced in thickness, as represented in Figs. 1 to 5. It is water-tight; but it would be upset under the thrust of the water without the arrangement of the caisson-counterweights *b*,
50 which are solidly fixed to the said inclosing wall and to the bottom of the reservoir and which are partly filled with stones or with

suitable heavy material, Fig. 3. These caissons are connected to one another by webs *c*, also of strengthened cement, pierced with
55 holes *d* to permit of the water of the reservoir reaching the inclosing wall *a*. All the parts are in strengthened cement and form a single body very solidly connected. The inclosing wall *a* cannot upset without dragging with it
60 the caissons *b*, which is, however, rendered impossible owing to the weight of these caissons, their eccentric arrangement with regard to the containing-wall *a*, and by the fact that the caissons are solidly fixed to the foot
65 of the reservoir.

The walls of the reservoirs or the supports may be of any suitable form whatever, either straight or curved, as may also those of the caissons. What I regard as my invention is
70 the employment of the caissons of strengthened cement (filled with liquid, with masonry, with earth, or any other material) bound solidly to the rest of the work to form one single whole therewith and opposing tendency to the overthrow or upsetting of the same.
75

It may be well to mention that the counterweighting-caissons *b* contribute to the stability not only by their weight, but also by their attachment to the bottom of the reservoir.
80

It goes without saying that in the case of reservoirs the counterweighting-caissons may be filled with water or any other convenient liquid, and a part of their capacity (or even
85 the whole if their actual weight is sufficient) may be utilized to form part of the reservoir proper. It is to this end that I have arranged the openings *e* in the wall of the caissons *b*.

The arrangements which may be adopted
90 when employing my counterweighting-caissons are very numerous. I have indicated a certain number in Figs. 6 to 11, which represent some possible modifications of the construction shown in Fig. 4. The containing-
95 wall *a* may be straight and the caissons *b* be semicylindrical, Fig. 6. The containing-wall may be formed by a series of connected cylinders, Fig. 8. Finally, the caissons *b* may be made partly integral with the containing-
100 wall, and in the extreme case the containing-wall may be formed by the conjunction of the counterweighting-caissons connected the one to the other, as in Figs. 9 and 11.

What is claimed, and desired to be secured by Letters Patent of the United States, is—

1. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall, and counterweight-caissons integral therewith.
2. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall of strengthened cement, and counterweight-caissons integral therewith.
3. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall, counterweight-caissons integral therewith, and means for connecting the caissons to each other.
4. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall constructed of strengthened cement, counterweight-caissons integral therewith and constructed of strengthened cement, and means constructed of strengthened cement for connecting the caissons together.
5. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall, counterweight-caissons suitably connected thereto and provided with an opening, and a perforated wall arranged between each pair of caissons.
6. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like,

consisting of an inclosing wall constructed of a series of vertical half-cylinders, and a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders.

7. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall constructed of a series of vertically-extending integral half-cylinders, and a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders and integral therewith.

8. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall constructed of a series of vertically-extending integral half-cylinders, a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders and integral therewith, and walls arranged between the caissons and suitably connected thereto.

9. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall, caissons integral therewith, and a wall arranged between each pair of caissons.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH DAIME.

Witnesses:

ALPHONSE PUGET,
FREDERIC FIGUIERE.