

C. F. DOEBLER.
DAM CONSTRUCTION.

APPLICATION FILED OCT. 11, 1910. RENEWED OCT. 11, 1911.

1,010,736.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 1.

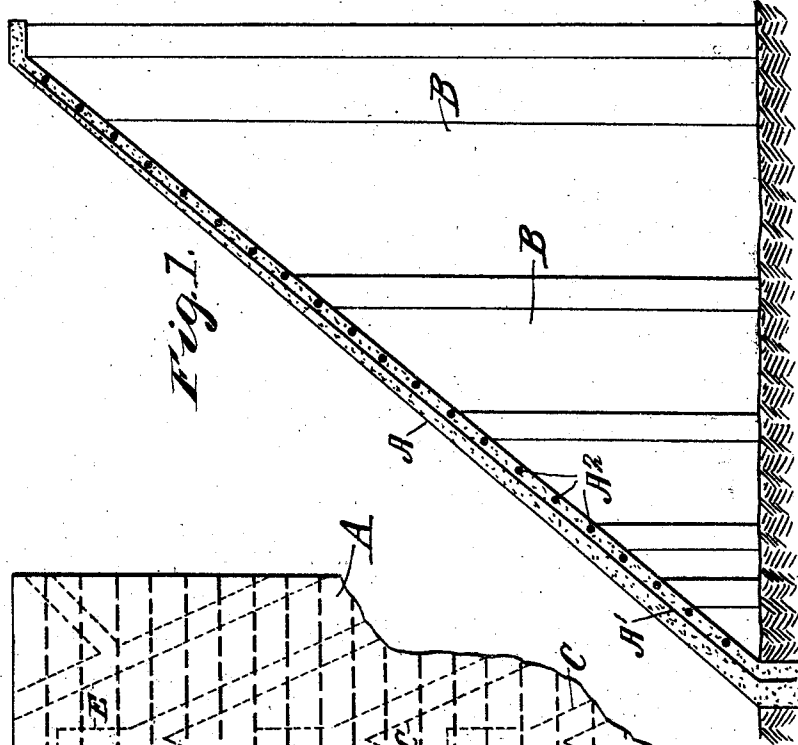
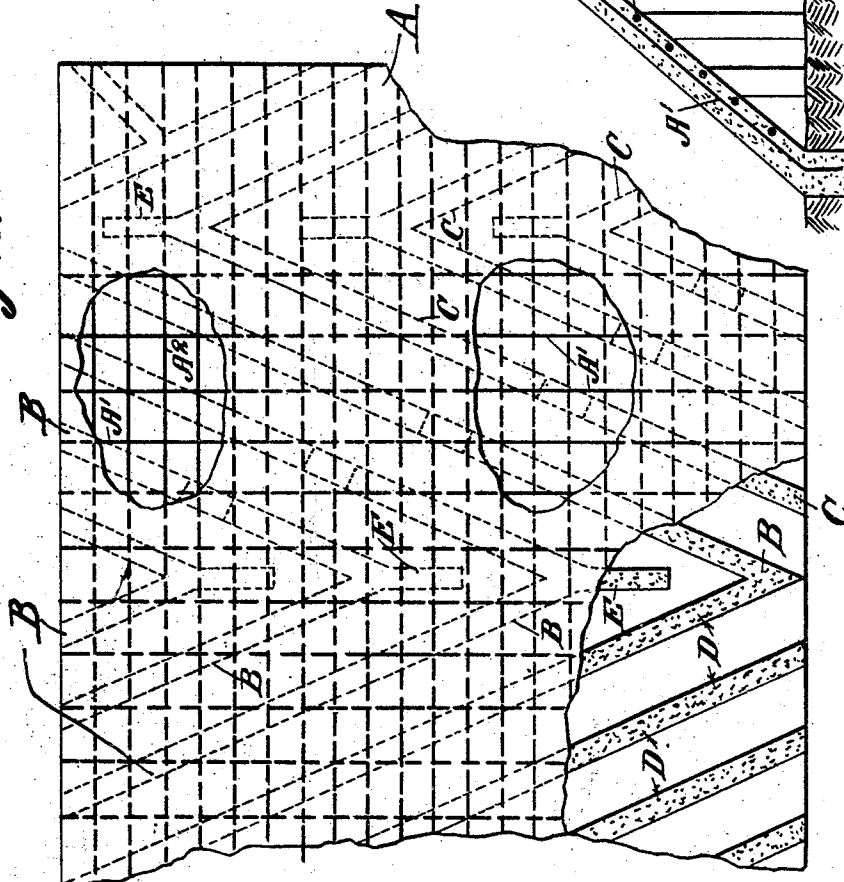


Fig. 2.



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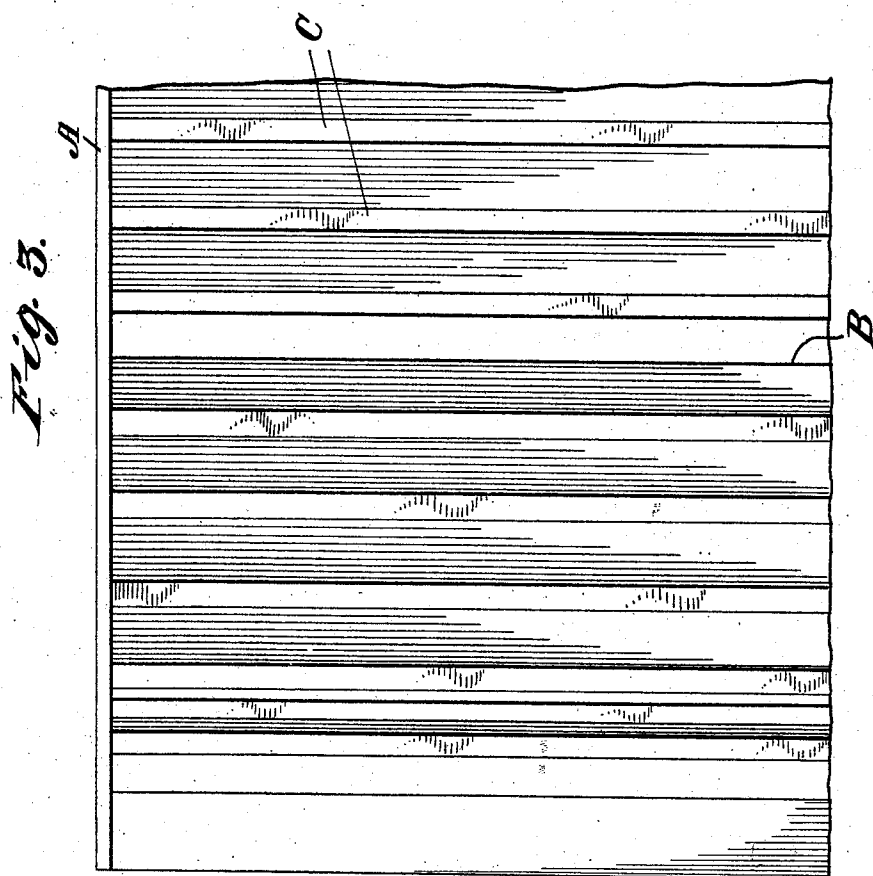
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UNITED STATES PATENT OFFICE.

CHARLES F. DOEBLER, OF NEW YORK, N. Y., ASSIGNOR TO NATIONAL HYDRAULIC CONSTRUCTION COMPANY, A CORPORATION OF NEW YORK.

DAM CONSTRUCTION.

1,010,736.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed October 11, 1910, Serial No. 586,584. Renewed October 11, 1911. Serial No. 654,251.

To all whom it may concern:

Be it known that I, CHARLES F. DOEBLER, a citizen of the United States, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Dam Construction, of which the following is a specification.

My invention relates to dam constructions, and the object of my invention is to provide a hollow gravity dam of concrete or other suitable material which can be molded by pouring the material in false work.

A further object is to provide a construction in which the walls or buttresses are arranged at an angle to the flow of the stream and are joined together, and also arranged so that the walls will be separated an equal distance from each other at most all points so that the deck will expand and contract evenly and the weight of the water will be about evenly disposed between the buttresses.

A further object is to provide a deck for the dam reinforced by metal or other suitable rods which are embedded in the deck and which extend across the buttresses.

Referring to the drawings which form a part of this specification, Figure 1. is a cross sectional view of a dam embodying my construction and disclosing the rods in the deck. Fig. 2. is a plan view of a portion of the deck, shown partly in section to show the arrangement of the reinforcing rods in the deck, and a part removed to show the arrangement of the supporting walls or buttresses. Fig. 3. is a view of the dam from the down stream side.

A, indicates the deck which is laid at an angle to the base line of the dam, and is provided with a series of reinforcing rods $A'-A'$, etc., which extend from the bottom of the dam to the top as shown, and are spaced evenly apart from each other a predetermined distance, and A^2-A^2 , etc., indicate a series of rods which run longitudinally of the deck and are located below said first rods. The deck is formed integral with and supported by the buttresses which appear in plan to be arranged in a series of V shaped portions, one series having the apex of the V reversed in position relative to the other series adjacent thereto so that

the distance between the walls will be equal and therefore the spaces spanned by the deck will be of equal width and the load of water will be more evenly distributed between the buttresses, and by reason of the angular arrangement of the buttresses and the interlocking of same in pairs, a very stable structure can be provided.

The buttresses are shown clearly in Fig. 2. and one series is indicated by B-B-B, etc., shown in section and dotted lines, and the adjacent series is indicated by C-C-C, etc., the spaces being indicated by D-D-D, etc. Where the buttresses join each other they are preferably extended in a single short wall or buttress indicated by E-E-E the purpose being to prevent too large an area of the deck to remain unsupported by a buttress at the points where these walls E are placed, as will be readily understood. By this arrangement of buttresses and supporting rods, the rods all cross the buttresses at frequent distances apart and thereby the entire deck is most perfectly adapted to carry the load of water safely, and comparatively smaller rods may be used than in cases where the rods do not so frequently cross the buttresses.

Having thus described my invention I claim as new,

1. A hollow gravity dam embodying a series of separated independent V shaped buttresses arranged at an angle to each other and to the flow of the stream and having a deck formed integral therewith and embodying a series of rods embedded therein and extending across said buttresses and a series of rods extending across said buttresses and said first rods.

2. A hollow gravity dam embodying a plurality of independent series of V shaped buttresses, one series being located in reverse position relative to the adjacent series.

3. A hollow gravity dam embodying a plurality of independent series of V shaped buttresses, one series being arranged in reverse position relative to the adjacent series and having a deck provided with reinforcing rods embedded therein and extending across said buttresses.

4. A hollow gravity dam embodying a plurality of V shaped buttresses having walls arranged at an angle to the flow of the

stream and arranged one behind the other in series, one series being arranged in reverse position relative to the adjacent series, and having a deck provided with reinforcing rods which extend across said buttresses.

5 5. A hollow gravity dam embodying a plurality of V shaped buttresses arranged at an angle to the flow of the stream and arranged one behind the other forming a series, and a second series of like form located adjacent to said first series and arranged in reverse position, and a deck provided with reinforcing rods extending across said buttresses and having a second series of rods
10 extending across said first rods.

6. A hollow gravity dam embodying a plurality of V shaped buttresses arranged at an angle to the flow of the stream and arranged one behind the other forming a series, and a second series of like form located adjacent to said first series and arranged in reverse position, and a deck provided with reinforcing rods extending across said buttresses and longitudinally of the deck and
20 having a second series of rods extending across said first rods and located above same.

7. A hollow gravity dam embodying buttresses arranged in series, each of which is V shape in form and having their walls parallel to each other, each alternate series of buttresses having their ends reversed relative to the adjacent series.
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8. A hollow gravity dam embodying buttresses arranged in series, each of which is V shape in form and having their walls parallel to each other, each alternate series having their ends reversed relative to the adjacent series, and a short wall extending from the point where the buttresses join each other
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toward the junction of the adjacent buttress substantially as shown. 40

9. A hollow gravity dam embodying buttresses V shape in form and arranged one behind the other and spaced apart from each other at equal distances. 45

10. A hollow gravity dam embodying a plurality of series of V shaped buttresses placed one behind the other in each series, one series having the ends of the buttresses located on the down stream side of the dam and the adjacent series having the ends of the buttresses located on the upstream side thereof, and a deck formed integral with said buttresses. 50

11. A hollow gravity dam embodying a series of separated independent V shaped buttresses arranged at an angle to each other and to the flow of the stream and having a deck supported by said buttresses and embodying a series of rods embedded therein and extending across said buttresses and said first rods. 60

12. A hollow gravity dam embodying a plurality of series of V shaped buttresses placed one behind the other in each series, one series having the ends of the buttresses located on the down stream side of the dam and the adjacent series having the ends of the buttresses located on the upstream side thereof, and a deck supported by said buttresses. 70

Signed at New York in the county of New York and State of New York this 26th day of August A. D. 1910.

CHARLES F. DOEBLER.

Witnesses:

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