

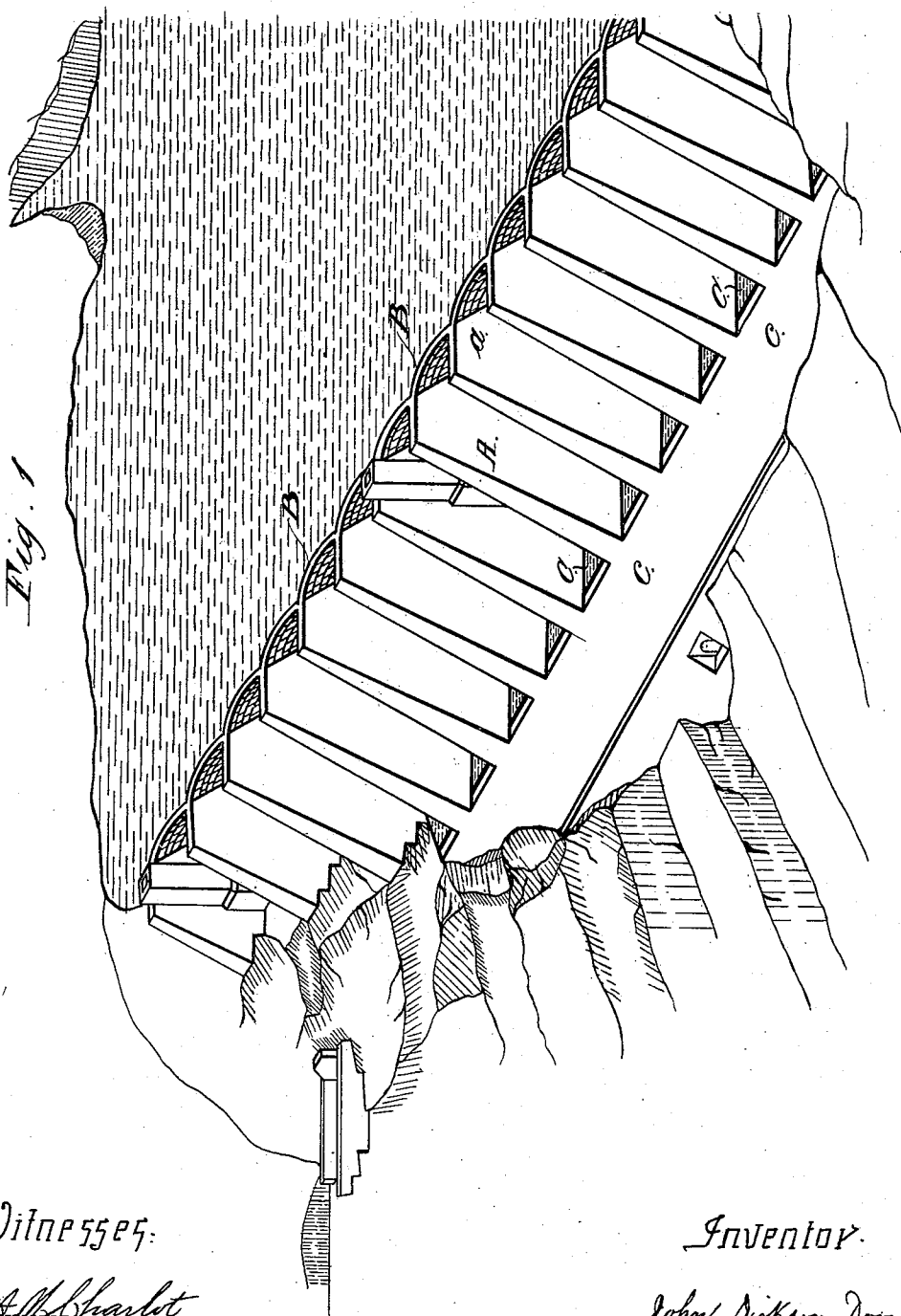
(No Model.)

2 Sheets—Sheet 1.

J. D. DERRY.
DAM, WEIR, OR RETAINING WALL.

No. 474,988.

Patented May 17, 1892.



Witnesses:

A. M. Chandler

L. B. Isaacs

Inventor.

John Dickson Derry

By *Smith & Babson*

his Attorneys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

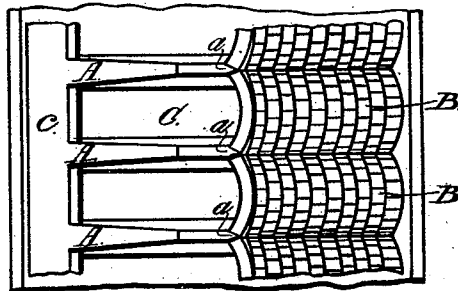
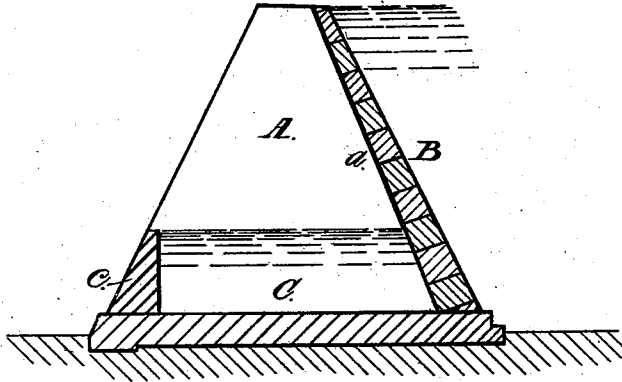


Fig. 3.



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A. M. Charles

S. B. General

Inventor:

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By [Signature] his Attorneys

UNITED STATES PATENT OFFICE.

JOHN DICKSON DERRY, OF HORSHAM, VICTORIA.

DAM, WEIR, OR RETAINING-WALL.

SPECIFICATION forming part of Letters Patent No. 474,988, dated May 17, 1892.

Application filed November 12, 1891. Serial No. 411,713. (No model.)

To all whom it may concern:

Be it known that I, JOHN DICKSON DERRY, consulting engineer, a subject of the Queen of Great Britain, residing at Horsham, in the British Colony of Victoria, have invented an Improved Dam, Weir, or Retaining-Wall, of which the following is a specification.

The object of this invention is to reduce the quantity of material required for the construction of dams, weirs, or retaining-walls while at the same time increasing their strength or stability.

My invention consists in a dam, weir, or retaining-wall wherein the piers or buttresses are formed with their front edges or ends reclining away from the retained material. From the front of these reclining edges or ends spring arches having correspondingly-reclined outer surfaces, so that the vertical weight or pressure of the structure and the water or other material retained thereby, combined with the horizontal pressure of such water or other material, gives a resultant at right angles to the reclining extrados of said arches, thereby throwing the center of pressure well within the bases of the supporting-buttresses. A water reservoir or cistern is provided between these latter in order to assist in resisting the pressure against the lower part of the dam, as well as to act as a cushion to reduce the concussion of the water falling over the crest of the dam, weir, or wall, as will be well understood from the following description, reference being had to the accompanying drawings, wherein—

Figure 1 is an isometrical perspective view of a dam, weir, or retaining-wall constructed according to my invention. Fig. 2 is a plan of part of such dam, weir, or retaining-wall; and Fig. 3 is a vertical transverse section taken through the center of one of the arches and reservoirs of said dam, weir, or retaining-wall.

The same letters of reference indicate the same parts in all the figures.

A A represent the piers or buttresses, whose front edges or ends *a* are reclined away from the retained material and have correspond-

ingly-reclined arches B, springing from them, the whole being arranged at such an angle 50 that the vertical weight or pressure of the structure and the water or other material retained by it, together with the horizontal pressure of such water or other material, gives a resultant at right angles to the reclining extrados of said arches, thereby throwing the center of pressure well within the bases of the buttresses A, as above described.

C C represent the water reservoirs or cisterns, which are provided between the buttresses A A by constructing walls *c*, extending between them, as shown, so as to provide a cushion of water to reduce the concussion of the water falling over the crest of the weir. 65

It will be readily understood by all persons skilled in the art to which my invention relates that my improved dam, weir, or retaining-wall contains far less material than is required in the construction of an ordinary one 70 of the same size, and that it moreover involves far less labor in its construction and is therefore much cheaper, while at the same time it is quite as durable.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is— 75

1. A dam, weir, or retaining-wall consisting, essentially, of a number of piers or buttresses, such as A, having their front edges or ends reclined away from the retained material and having correspondingly-reclined arches, such as B, springing from said front edges and arranged at such an angle that the vertical weight or pressure of the structure and the water or other material retained by it, together with the horizontal pressure of such water or other material, gives a resultant at right angles to the reclining extrados 80 of said arches, and thereby throws the center of pressure within the bases of said piers or buttresses, substantially as and for the purposes specified, and as illustrated in my drawings. 85

2. In a dam, weir, or retaining-wall, the 95

combination, with a series of piers or buttresses, such as A, supporting reclined arches, such as B, of reservoirs or cisterns formed behind said reclined arches and between said
5 piers or buttresses, so as to form a cushion for the water falling over the crest of the dam, weir, or wall, the whole being constructed and arranged substantially as and for the purposes

specified, and as illustrated in the accompanying drawings.

JOHN DICKSON DERRY.

Witnesses:

WILLIAM BELL,

HORACE PATRICK ROBERTSON,

Both of Horsham, Civil Engineers.