April 12, 1932. C. V. DAVIS 1,853,668

DAM

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Fig. 1.

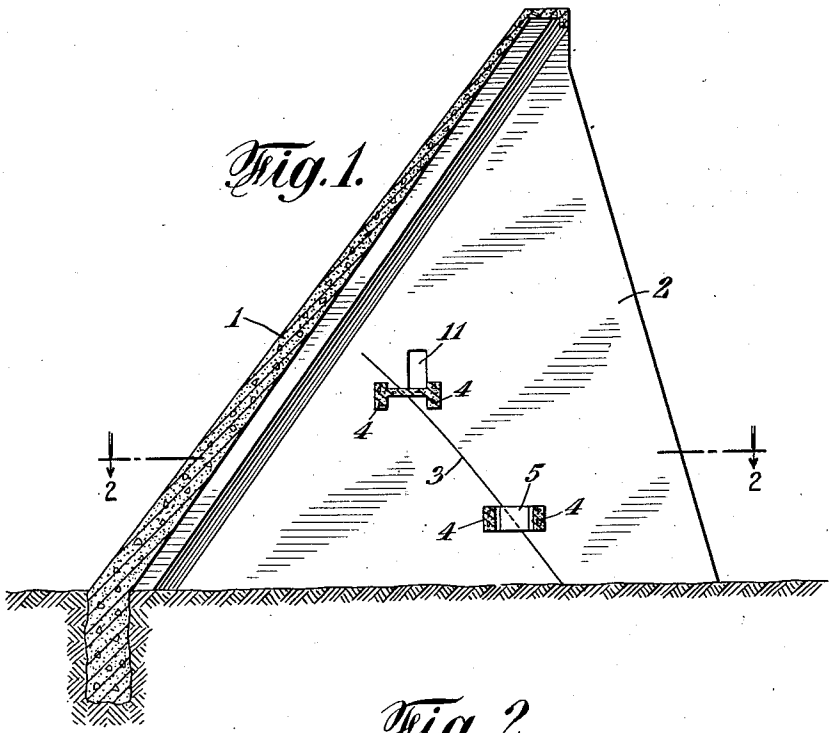

Fig. 2.

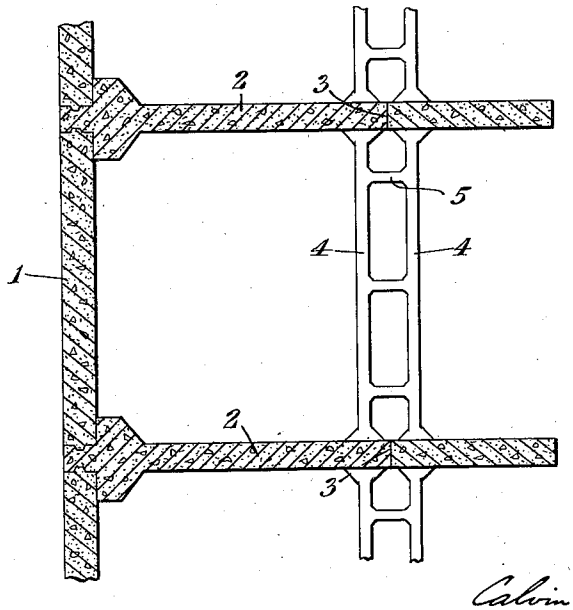

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Fig. 3.

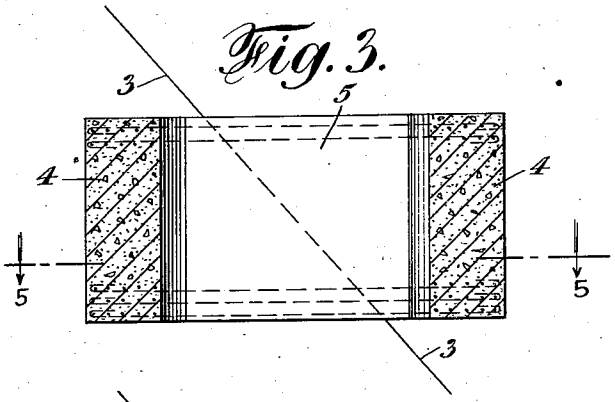


Fig. 4.

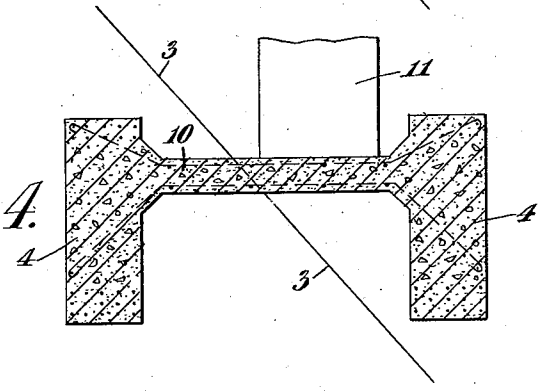
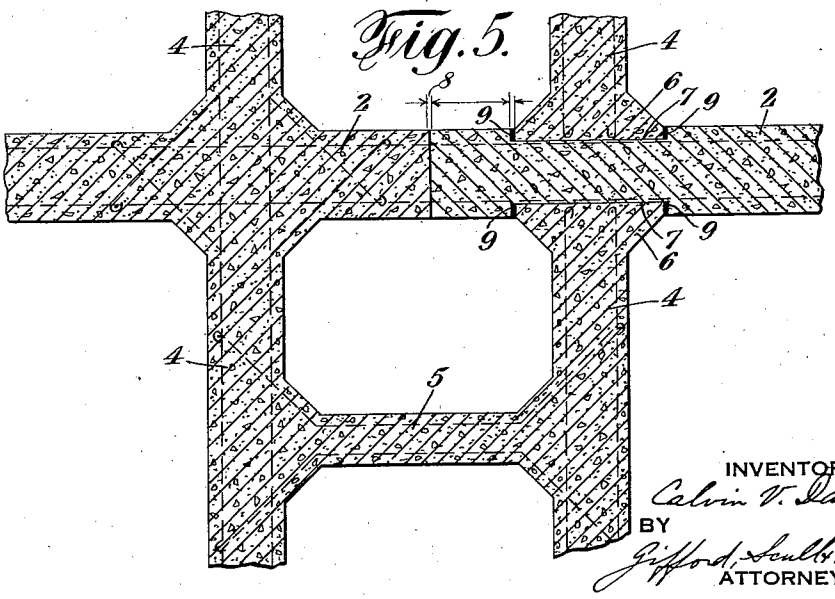


Fig. 5.



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UNITED STATES PATENT OFFICE

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DAM

Application filed May 5, 1930. Serial No. 449,935.

This invention relates to a novel and improved form of dam, the novel features of which will be best understood from the following description and the annexed drawings, in which I have shown a selected embodiment of the invention, and in which:—

Fig. 1 is a vertical sectional view through a dam constructed according to this invention;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Figs. 3 and 4 are views on an enlarged scale showing certain details appearing in Fig. 1;

Fig. 5 is a section on the line 5—5 of Fig. 3.

Referring first to Fig. 1, I have shown therein a dam of the so-called hollow type having an inclined up-stream water-bearing deck 1 and beneath the deck a plurality of supports here shown as buttresses 2 extending down stream from the deck. The deck is shown as of the flat slab type, but any other suitable form of water-bearing surface may be employed as, for example, the arch or dome type.

In this type of dam the supports are often provided with joints 3 which may be either contraction or construction joints. Any side thrust which may occur at one support on one side of a joint is, according to my invention, distributed approximately equally to both sides of a joint in the adjacent support and this may be done by providing adjacent the joints 3 a brace, here shown as longitudinal members 4 bearing at opposite ends against the supports on opposite sides of the joints 3 and connected by cross-bracing members 5. As shown in Fig. 3, suitable reinforcing may be employed in these members to tie them together so that the entire brace will act as a unitary structural element whereby the thrust originating, let us say, on the up-stream side of the joints 3 will be transmitted to both up-stream and down-stream sides of joints 3 and an adjacent support.

Referring now to Fig. 5, I have shown one of the members 4 as integrally connected to a support 2 on one side of the joints 3 and the other member 4 as having a joint with the support on the opposite side of the joints 3. In this form the latter member 4 is provided with a head 6 received in a recess 7 in the support and the head is made slightly narrower than the width of the recess, as measured up and down stream, or transversely of the member 4, so that a certain amount of transverse play may take place. I have indicated at 8 an amount of relative movement between the two parts of the support on opposite sides of the joints 3, this taking place during expansion and contraction in the support. In order to relieve the braces of stress due to this opening and closing of the joints 3, the above described construction is employed which will permit movement of the support 2 on one side of the joints 3 transversely of the member 4. Suitable material, such as asphalt, will be employed between the sides of the head 6 and the adjacent sides of the recess in which they are received.

While I have shown and described one member 4 as being integral with a support and the other side having a sliding joint therewith, nevertheless it is within the scope of my invention to make both members 4 with sliding joints between them and the supports.

An incidental advantage of the invention is that the braces may be used to support walkways 10 connecting with openings 11 in the supports.

By the above construction, the thrust lengthwise of the dam, on both sides of the joint in the support may be equalized and given a wider distribution through the brace, as a whole, thereby giving as much stress to one part of the support with respect to the other, and more effectively and efficiently distributing the stresses through the bracing itself.

I claim:

1. In a dam, an inclined up-stream water-bearing deck, a plurality of supports disposed beneath said deck and extending down stream therefrom, each support having a joint therein, and braces between adjacent supports, comprising members engaging a support on both sides of said joint, and means tying said members together to form a unitary brace.

2. In a dam, an inclined up-stream water-bearing deck, a plurality of supports dis-

posed beneath said deck and extending down stream therefrom, each support having a joint therein, and braces between adjacent supports, comprising members engaging a support on both sides of said joint, means tying said members together to form a unitary brace, and a joint between at least one of said members and the support constructed to permit movement of the support transversely of the member.

3. In a dam, an inclined up-stream water-bearing deck, a plurality of supports disposed beneath said deck and extending down stream therefrom, at least two adjacent supports having each a joint therein, and members arranged to transmit thrust from one side of a joint in one support to both sides of the joint in the other support.

4. In a dam, an inclined up-stream water-bearing deck, a plurality of supports disposed beneath said deck and extending down stream therefrom, at least two adjacent supports having each a joint therein, and members arranged to transmit thrust from one side of a joint in one support to both sides of the joint in the other support, said means permitting opening and closing of the joints in an up- and down-stream direction.

CALVIN V. DAVIS.