No. 815,687. PATENTED MAR. 20, 1906.

L. K. DAVIS.

RETAINING WALL FOR RESERVOIRS.

APPLICATION FILED JULY 16, 1903.

Fig. 1.

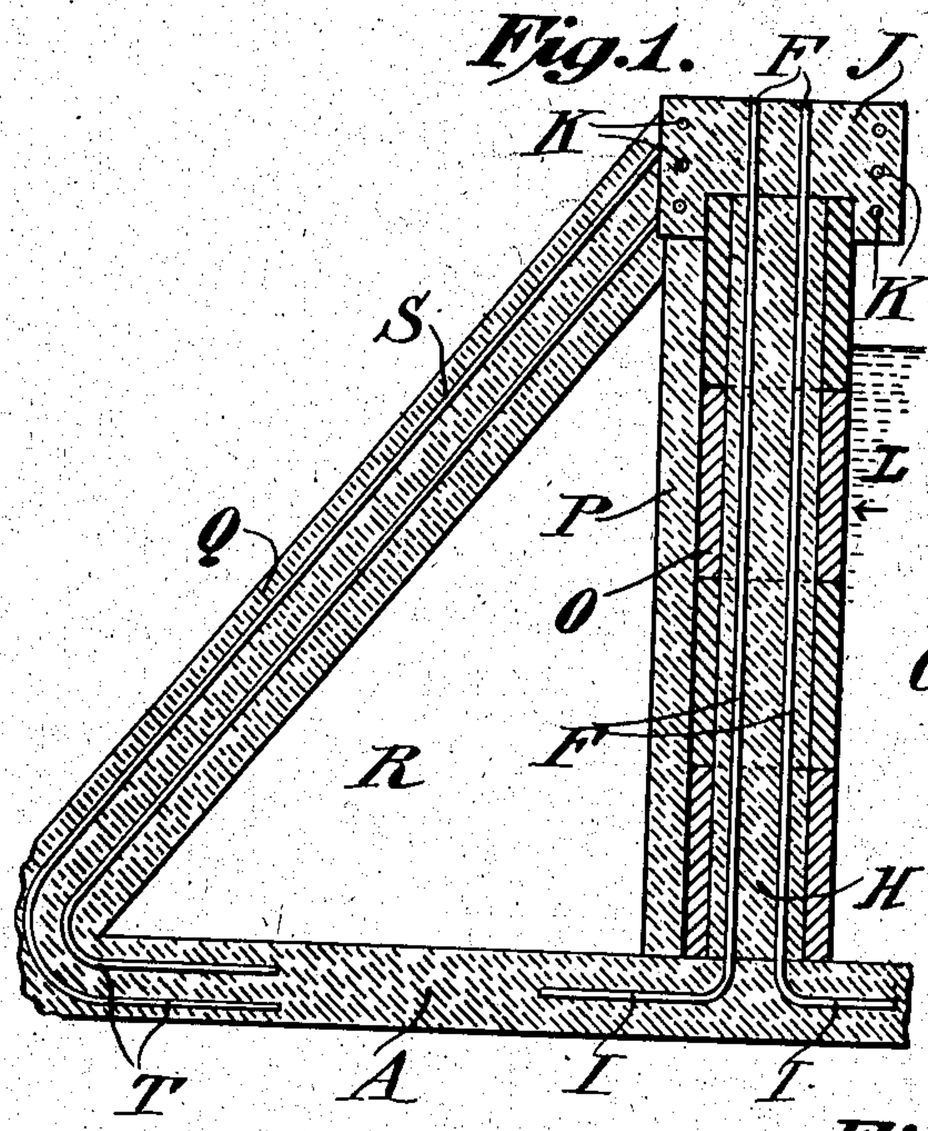


Fig. 2.

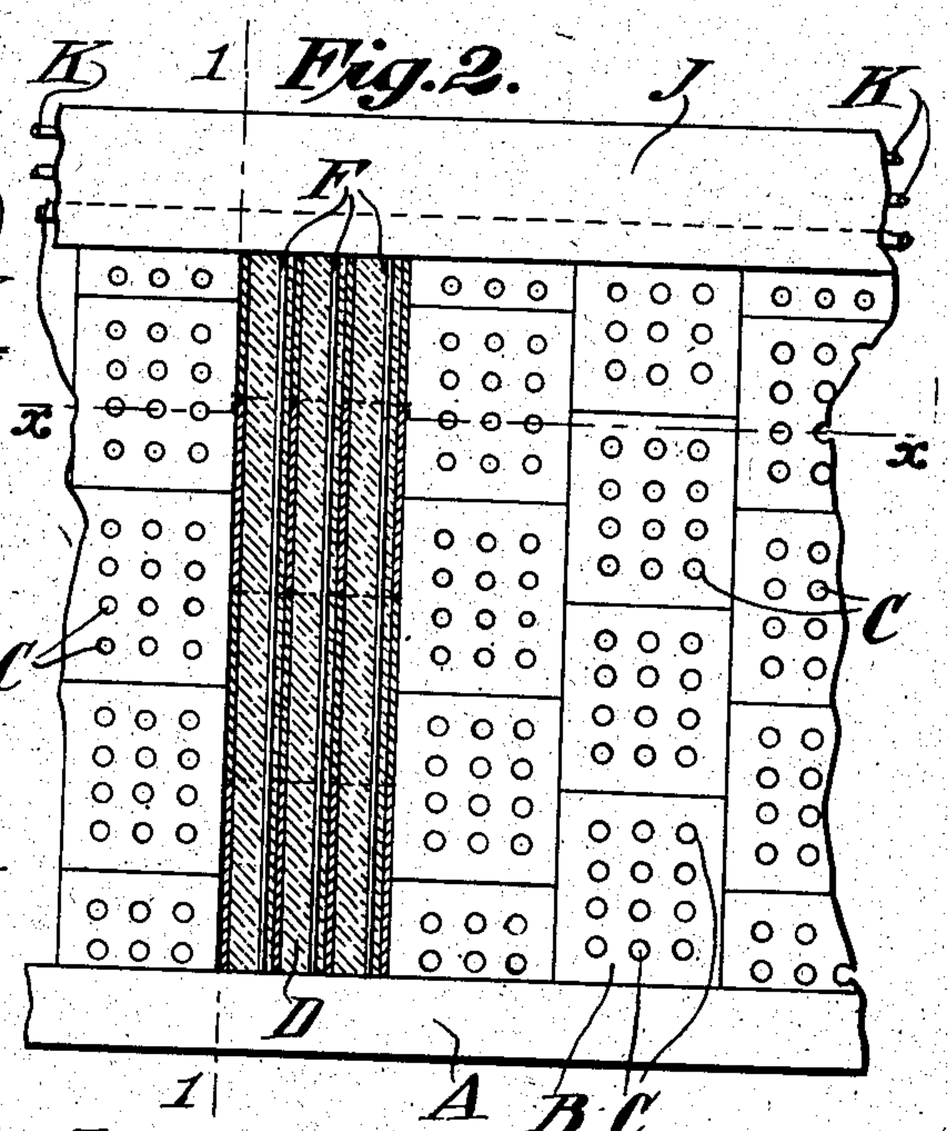


Fig. 3.

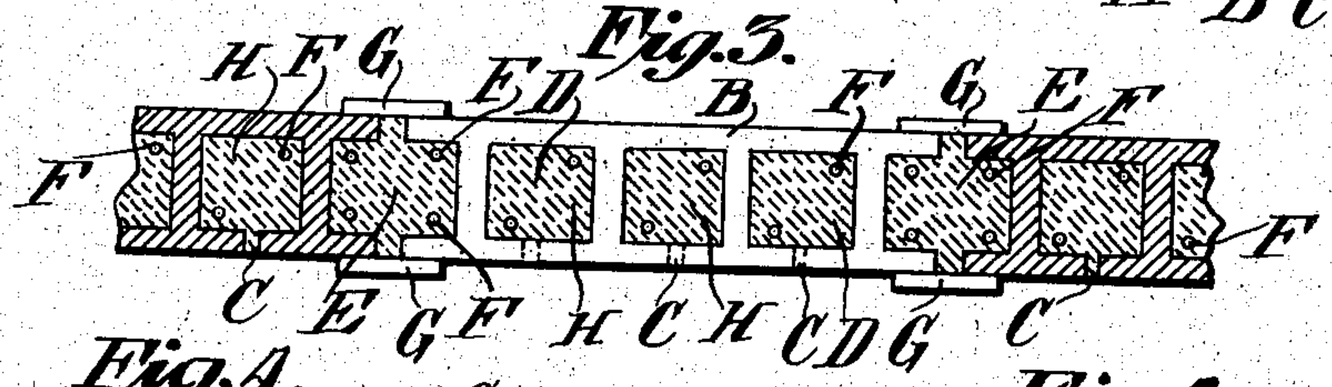


Fig. 4.

Fig. 5.

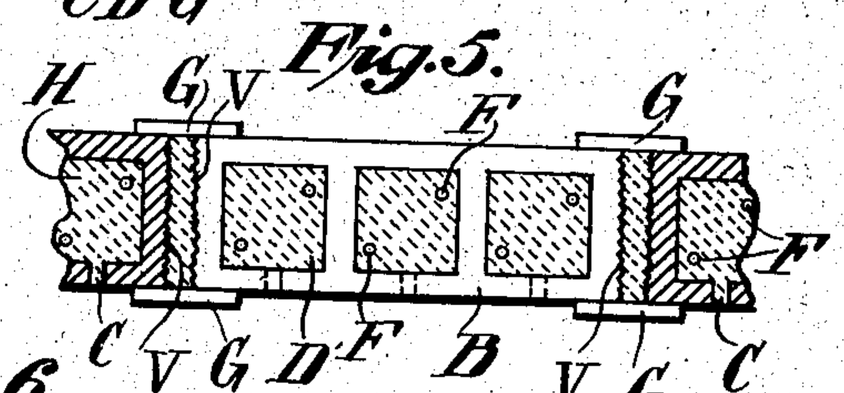
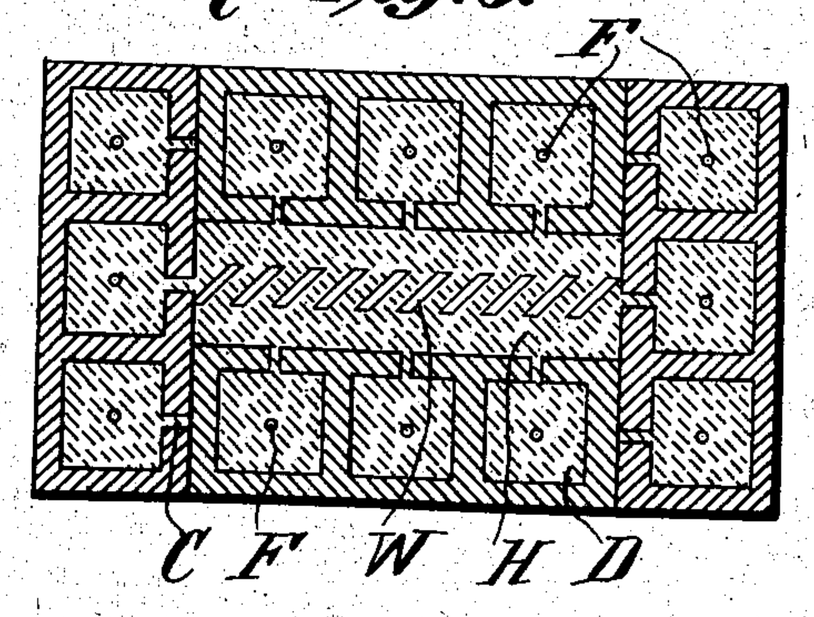


Fig. 6.



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RETAINING-WALL FOR RESERVOIRS.

No. 815,687. Specification of Letters Patent. Patented March 20, 1906.

Application filed July 16, 1903. Serial No. 165,738.

To all whom it may concern:

Be it known that I, LEWIS K. DAVIS, a citizen of the United States, and a resident of Indianapolis, Indiana, have invented certain new and useful Improvements in Retaining-Walls for Reservoirs, of which the following is a specification, accompanied by drawings.

This invention relates to masonry walls, but more particularly to retaining-walls for reservoirs; and its objects are to improve upon the construction of such walls, increase their strength, and reduce the cost of construction.

Further objects of the invention will hereinafter appear; and to these ends the invention consists of a retaining-wall for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts, substantially as hereinafter fully described and claimed in this specification and shown in the drawings, in which—

Figure 1 is a transverse sectional elevation of a reservoir-wall embodying the invention. Fig. 2 is a side elevation, partly in section, of the wall. Fig. 3 is a partial plan view on an enlarged scale on the line *x x* of Fig. 2. Fig. 4 is a partial plan view of a modified form of construction. Fig. 5 is a partial plan view of another modification, and Fig. 6 is a partial plan view of a form of column for walls.

While my improved retaining-wall may be utilized in any connection in which it is found applicable, I have shown it as applied to a reservoir in which A is the reservoir-bed, which may be of any suitable construction. The wall is constructed of hollow bricks or tiles B, which may or may not be provided with the perforations C in the sides, and these bricks B are arranged with their apertures D in a vertical direction, as shown in Fig. 2. Preferably the bricks are arranged to break joint, and the ends of the bricks are recessed, as at E, and through all of the apertures D and recesses E strengthening rods or bars F are arranged. Suitable forms G are applied at each side of the joints, and then the apertures D and recesses E are filled with a suitable bituminous filler—as, for instance, bituminous concrete H. The lower ends of the strengthening-rods F are preferably bent, as at I, and embedded in the base A of the structure.

If desired, a top layer J may be provided of concrete, in which strengthening-rods K are embedded, and, as shown in Fig. 1, the strengthening-rods F may be extended upwardly into the top layer J, thereby serving to bind the same to the main structure. If the retaining-wall is to serve as the wall of a reservoir, L will represent the inside of the wall and O the outside surface, to which outer surface a layer P, of concrete, may be applied, if desired, although this layer may be omitted.

According to this invention the retaining-wall is provided with a concrete bracing in the form of a strut Q, arranged at an angle to the main portion of the wall and connected to the wall at one portion of its height, as at the upper end adjacent the upper layer J, leaving an open space R between the strut Q and the side of the wall. Strengthening rods or bars S are shown embedded in the concrete strut Q, said bars being bent at their lower ends T and embedded in the base A of the structure. The concrete strut Q may be constructed in any suitable manner—as, for instance, by the use of forms. According to this construction it will be seen that a very material saving is made in the cost of construction, because the amount of material necessary is greatly lessened, and at the same time a wall of increased strength is produced, owing to the composite structure of the same, which is strongly braced in the desired directions and bound together by the strengthening-rods or tie-rods, as described, with a strengthening-filler of bituminous concrete.

The bricks or tiles B may be constructed in different shapes, as shown in Figs. 4 and 5. In Fig. 4 the bricks are shown interlocking one with another, each brick being provided with a tongue U, which interlocks with the recessed portion of the adjacent brick. In Fig. 5 the bricks are shown with flat corrugated ends V, which has been found to be a suitable and efficient construction, although the preferred form of construction is that shown in Fig. 4.

In Fig. 6 an elemental construction for a column is shown, which may be combined with the forms of wall illustrated to make up the complete wall. In the instance of Fig. 6 four of the bricks or tiles are combined in the form of a hollow square, forming a column, and a number of these hollow columns may be incorporated at intervals in the structure

of the wall. Preferably the end bricks of the columns are secured by expanded metal retainers or bands W. As before, strengthening-rods F are arranged within the hollow portions of the bricks and in the central hollow portions of the columns, and then a bituminous filler H is poured around the rods F within the hollow portions of the bricks and in the hollow center of the columns.

This invention is not limited to any particular form of filler for the retaining-wall, for bituminous concrete or any other suitable filler may be used, as desired.

Obviously some features of this invention may be used without others, and the invention may be embodied in widely-varying forms.

Therefore, without limiting myself to the construction shown and described nor enumerating equivalents, I claim, and desire to secure by Letters Patent, the following:

1. A retaining-wall for reservoirs and other uses, comprising hollow bricks or tiles arranged in the form of hollow squares with the apertures in the bricks in vertical direction, strengthening-rods extending through said apertures, and a bituminous filler around said rods in the hollow bricks and in the hollow squares, for substantially the purposes set forth.

2. A retaining-wall for reservoirs and other uses, comprising hollow bricks or tiles arranged with their apertures in a vertical direction, and filled with a bituminous filler, and a concrete bracing for said wall forming a strut connected to the wall at one portion with an open space between the strut and the side of the wall, for substantially the purposes set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEWIS K. DAVIS.

Witnesses:

CHAS. BROSSMAUER, Jr.,

FREDERIC LANSING.