June 10, 1930. R. E. DILL 1,762,713

JOINT CONSTRUCTION

Filed Aug. 20, 1925

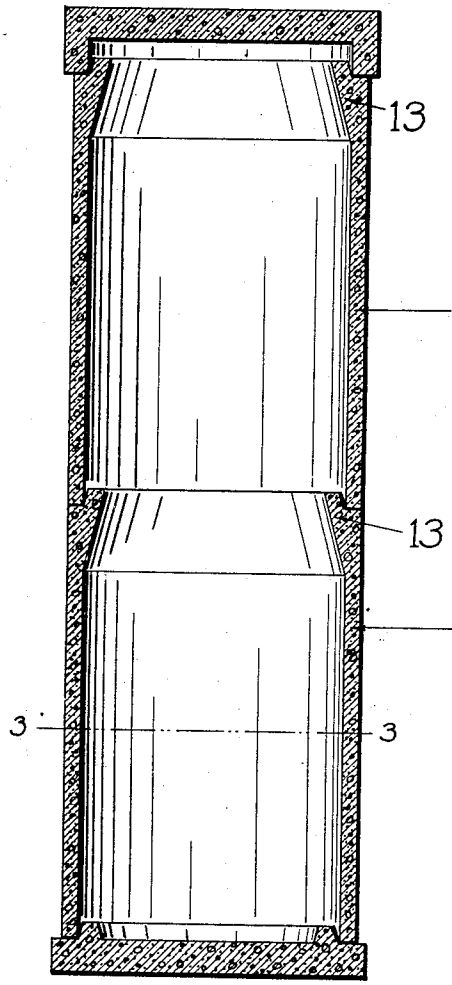


Fig. 1

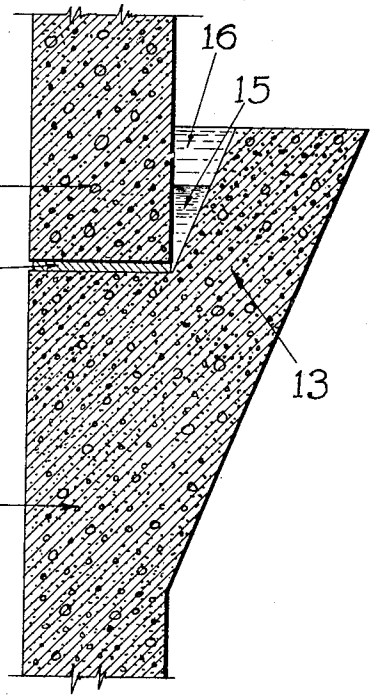


Fig. 2

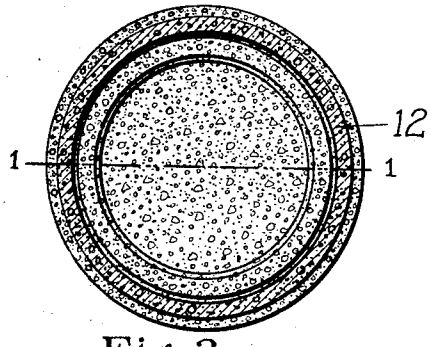


Fig. 3

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UNITED STATES PATENT OFFICE

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JOINT CONSTRUCTION

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My invention relates to improvements in joint construction and is applicable to concrete tile, baked clay tile, cast iron pipe, etc., when and wherever these tile are set vertically, and the principal object of my invention is the production of a simple and inexpensive joint that may easily be made water-tight, air-tight, or tight against any one of a number of different liquids or gases. While the description which follows will described the application of this invention to the sealing of air and of water in a concrete water pressure cistern, it is specifically recognized that the invention is broadly applicable to a number of similar adaptations and none of these are disclaimed.

Having in view these objects and others which will be pointed out in the following description, I will now refer to the drawings, in which

Figure 1 is a median vertical sectional view of a cistern or the like and showing the construction of my novel joint.

Figure 2 is a sectional view showing the contiguous ends of two tiles, on a somewhat enlarged scale and showing all of the elements of my improved joint.

Figure 3 is a view in transverse section on the line 3—3 of Figure 1.

Figure 1 shows a cistern or similar receptacle which is built up by means of tile arranged one above the other. The two sections of tile 11 and 12 are illustrative of the joint which may be duplicated by adding as many sections as is desired. The characteristic feature of the joint is the annular inwardly and upwardly projecting flange 13 on each section of the tile. This flange projects appreciably above the level of the seat so as to form an annular cavity on the inner side of the cistern surrounding the joint.

The section 11 is seated on the section 12 as shown in Figure 2 and the space between their meeting edges is filled with a cushioning or a cementing substance or with a substance which is both cushioning and cementing. This substance is designed to seal the joint against leakage. The space at 15 is filled with a substance which is repellent with respect to the contents of the cistern. Assuming that the cistern is designed to hold water, the substance at 15 may be paraffin or tar or any other water repellent substance. At 16 is shown a layer of water reaching to the level of the flange.

As before stated, the joint must be sufficiently tight to prevent the leakage of the contents of the cistern, and my improved joint affords a convenient test to determine whether or not leakage is possible. If there is any leakage the water at 16 will disappear through the joint at 14 but if the joint is tight the water at 16 will retain its level. This test is important because of its simplicity and convenience but the joint is also more certain to be secure than joints of the prior kinds because the substances at 15 and 16 very materially reinforce the seal at 14.

In the production of an air-tight cistern of concrete, plain or reinforced, it is not particularly difficult to produce sections that are impervious to water or air if under only moderate pressure, but it is as yet an uncertain process. The most practical method is the building of the same in units and testing each unit separately and combining those units which meet the required specifications into the finished cistern. But this method of procedure requires a reasonably easy and certain joint as well as one that is easily tested for tightness under the condition of being already in place in the structure. There are numerous joints being manufactured but none of these are equal in the above mentioned requisites to the joint herewith disclosed.

My invention consists in the construction on the inside of each tile of a flange or rim that extends above the line of contact between it and the tile above such that this flange or rim will form a circular trough with the inner and top edge considerably above the line of contact of the two tile. In this construction the flange forms a guide to the tile above forcing it to find its proper position. After guiding it to its proper seat it serves as a lock or stay holding it in position. It forms a trough whose inner surface may be coated with a water-resistant or repellant material and this in turn covered with water so that

the joint becomes in actuality an air-proof instead of only a water-proof joint. It changes a horizontal crank into a vertical one, so that gravity will hold the sealing material instead of pulling it away. The flange with this layer of water forms a remarkably accurate and easy detector of any joint that is failing to hold for if the water of any joint is missing it shows up that joint as a failing one. This flange furnishes an excellent base on which a workman may either lay a board for a scaffold or if they are conveniently placed, use their projecting surfaces themselves for support.

This flange or rim may be built on to the material of the tile or may be built as a part of the tile. It may be made of the same material, or of other material. Its essential feature is to extend above the line of contact of two tile when one is super-imposed upon the other, forming a trough. The combination of a water resistant substance covered by water, to confine air has been explained because that is especially applicable to the air-pressure cistern, but while this will be an excellent combination to confine any gas that is not especially soluble in water, other combinations may and should be resorted to if the substance to be confined is better confined by some other combination. It will be understood that the plan does not confine itself to a combination of just two elements. Three or any number can be used.

Having thus described my invention in such full, clear, and exact terms that its construction and utility will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A joint for superposed vertical walls comprising an abutting face on the upper end of the lower wall for receiving the lower end of the upper wall and disposed in longitudinal vertical alinement with the walls, a laterally inclined projection at one side of the lower wall extending from said seat upwardly in divergent relation to the inner face of the upper wall and forming therewith a pocket leading to the abutting faces of the upper and lower walls, a layer of cement interposed between the abutting faces of the walls for binding the same together, a body of water resisting material in said pocket against said layer of cement, and an upper body of liquid on said water repellant body for sealing the joint between said walls.

2. A joint for superposed tile comprising a horizontal annular seat on the upper end of the lower tile adapted to receive and support the lower end of the upper tile to hold said tiles in vertical alinement, a layer of cement between the abutting faces of said tiles, an upwardly and inwardly extending annular wall carried by the lower tile and rising above said horizontal seat and providing with the inner face of the upper tile an upwardly flaring pocket leading from said layer of cement, and a moisture and air repellant material in said pocket for sealing the joint between said tiles.

In testimony whereof I affix my signature.

RICHARD E. DILL.