J. COMERMA.

TILE ARCH CONSTRUCTION.

APPLICATION FILED APR. 26, 1917.

1,267,747. Patented May 28, 1918.

Fig. 1.

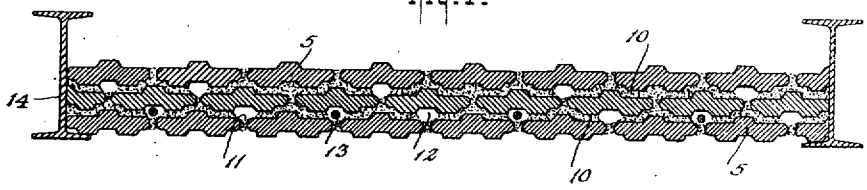


Fig. 2.

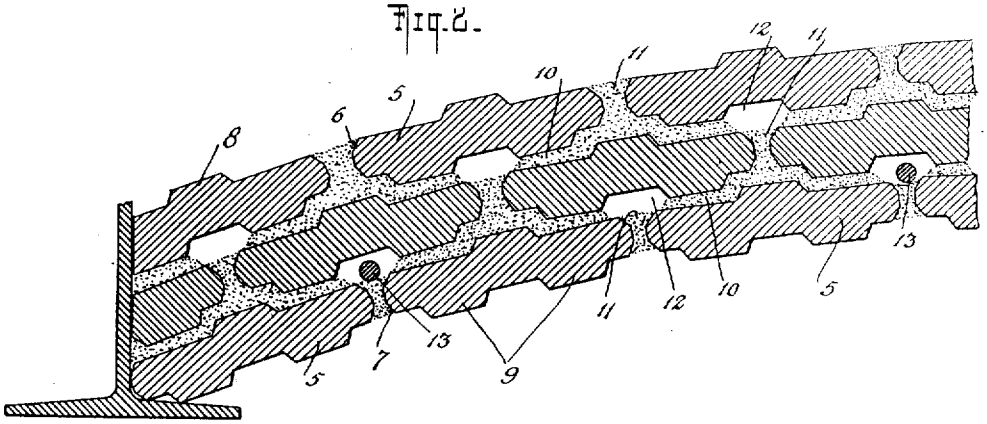


Fig. 3.

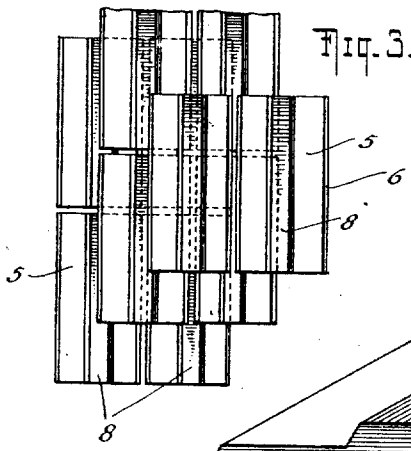
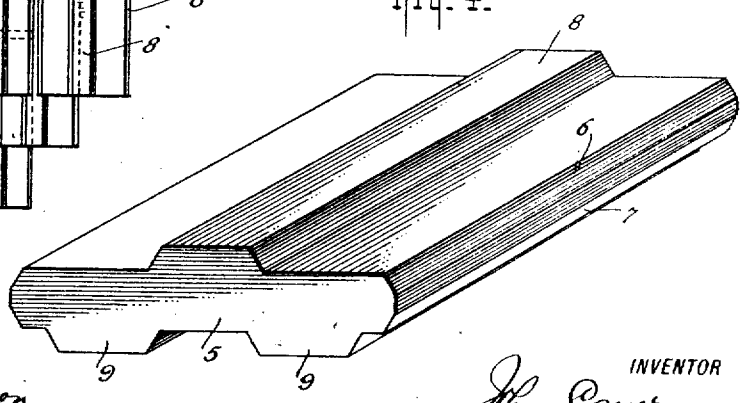


Fig. 4.



WITNESSES

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TILE-ARCH CONSTRUCTION.

1,267,747. Specification of Letters Patent. Patented May 28, 1918.

Application filed April 26, 1917. Serial No. 164,622.

To all whom it may concern:

Be it known that I, JOHN COMERMA, a subject of the King of Spain, and resident of the borough of Manhattan, city, county, and State of New York, have invented a new and useful Improvement in Tile-Arch Constructions, of which the following is a specification.

My invention relates to tile arch constructions for floors, ceilings and other building elements and has for its object to provide a construction of maximum rigidity and capable of sustaining heavy loads with safety. My improvement further contemplates a construction in which the tiles develop a maximum resistance to transverse thrusts, compression strains and to other forces which may occur in practice. Another object of my invention is to construct the tiles in such a manner that they may be readily pressed home in a bed of mortar or other binder and so that a firm grip is obtained between the tiles and the mortar. In addition my improvement aims to provide a construction in which conduits or channels for the accommodation of reinforcing elements, electric wiring and the like may be readily formed. My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

In the accompanying drawings, which show an example of my improvement for illustrative and descriptive purposes, Figure 1 is a cross-section of a tile arch constructed according to my invention; Fig. 2 is a detail section of another arch construction on an enlarged scale; Fig. 3 is a detail plan view and Fig. 4 is a perspective view of one of my improved tiles.

As shown in the drawings the tiles each comprise a main or body portion 5 provided at opposite edges with beveled surfaces 6 and 7 as shown in Fig. 4. Each tile is further provided with a single rib 8 extending along one surface of the body preferably in registry with the major median line thereof and in addition includes a pair of ribs 9 which extend along the other surface of said body and are preferably located at opposite sides of said major median line, in spaced relation to each other as illustrated in Fig. 4.

In utilizing my improved arch construction a first course of tiles 5 is laid upon a suitable temporary centering with the edges at which the beveled surfaces 6 and 7 are located, of adjacent tiles spaced from each other as shown in Fig. 2. The tiles 5 are laid with the single ribs 8 thereof projecting upwardly. A layer of mortar or other binder 10 is then placed upon this first course of tiles and between the adjacent edges thereof after which a second course of tiles 5 is laid upon the first course in the same way and also with the single ribs 8 extending upwardly. As shown in Figs. 1 and 2 the tiles 5 of the second course are laid in break-joint or staggered relation to the tiles of the first course or in other words so that the joints between adjacent tiles of the second course are in registry with the single ribs 8 of the first course and with the spaces between the ribs 9 of the second course in registry with the joints between adjacent tiles 5 of the first course as shown in Fig. 2. The second course may now be again covered with mortar or other binder 10 after which a third course of tiles may be laid thereon, the arrangement of the tiles in the third course corresponding to that of the tiles in the first course.

This construction thus provides a break joint arrangement in a direction transverse to the arch. In the preferred form the tiles in the various courses are laid so as to also break joint in a direction longitudinally of the arch, for instance as shown in plan view in Fig. 3. It will of course be understood that the laying of the courses of tiles may be continued in the same way until an arch of the desired thickness is secured.

The beveled edges 7 act in the nature of wedges and permit the tiles to be pressed home into the mortar or other binder with greater facility than if otherwise constructed. While the beveled edges 6 form diverging recesses between adjacent tiles and permit the mortar or other binder 10 to spread out above the intermediate portion of the tile edges and form keys 11. These keys 11 of mortar or other binder resist any tendency of the tiles 5 in any course to move upward and provide what may be termed a

keyed connection or grip between the tiles and the binder.

It will be seen that with my improved construction the mortar joints between the courses extend in zig-zag lines transversely to the arch and in some cases continuously across the same. The various ribs 8 and 9 which project from the tiles into the joints permit each tile to develop an immense resistance to any cross thrusts, or other forces exerted transversely of the arch. The construction also prevents any compression strains which in practice may be exerted on the arch in a transverse direction from bulging the different courses of tile, and more particularly the upper one, outwardly. The arrangement of the binder 10 at the points 11 in the form of keys also assists to prevent any such displacement of the tiles.

If desired some of the spaces between the lower ribs 9 may be left free from mortar 10 in order to provide channels or conduits 12 for the accommodation of reinforcing rods 13 or the like, electric wiring, steam pipes, etc. These channels 12 may be formed in any desired arrangement and may be provided in sufficient numbers to meet the requirements of the particular case in hand. My improvement makes it possible to include these channels without weakening the load carrying capacity of the arch, this being due to the zig-zag joints with the ribs projecting into the same to resist strains, to the arrangement of the binder at the points 11 and to the general construction and arrangement of the tiles.

My improvement is easily built up and provides a perfect cohesive tile construction capable of sustaining great loads with safety, which is thoroughly hydraulic and unaffected by water or other moisture and which is absolutely fire proof. The exposed surfaces or surfaces of the arch may be covered with plaster or the like in which case the ribs 8 and 9 may be permitted to remain and operate to secure an intimate bond between the tiles and the plaster or the like. If said surfaces are not to be covered the upper ribs 8 of the upper course or the lower ribs 9 of the lower course, or both, may be removed in any suitable manner or said ribs may even in such case be permitted to remain as they add to rather than detract from the appearance of the structure.

My improvement is extremely simple, the tiles being cheap to produce and being readily built up into the desired structure. It will be obvious that my improved arch construction may be efficiently used for floors, ceilings, staircases, domes, vaults and for other building purposes. The arch may be supported in any usual manner as for instance on beams 14; the ends of adjacent tiles in each course may actually abut or be spaced apart a sufficient distance to prevent the formation of dry joints. It will, of course, be understood that the number and relative arrangment of the ribs on the tiles may be other than that shown.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my improvement.

I claim:

1. An arch construction comprising a plurality of courses of tiles, projections of substantially even dimensions throughout on said tiles extending into the joints between adjacent courses and giving a zig-zag form to said joints and a binder in said joints extending in zig-zag lines transversely to said arch.

2. An arch construction comprising tiles arranged in courses, in break joint arrangement relatively to each other, individual ribs of substantially even dimensions throughout extending upwardly from the tiles in one course, a plurality of ribs of substantially even dimensions throughout extending downwardly from the tiles in the next course, said ribs forming a zig-zag joint between said courses and a binder in said joint extending in a zig-zag line transversely to said arch.

3. An arch construction comprising a course of tiles having individual ribs extending upwardly from and lengthwise of each tile, a second course of tiles having a pair of depending ribs spaced from each other and extending lengthwise of each tile in said second course, the individual ribs being in substantial registry with the substantially vertical joints of the second course, and the space between each pair of depending ribs being in substantial registry with the substantially vertical joints of the first course, and a binder in the joints between said tiles extending in a zig-zag line transversely of the arch.

4. An arch construction comprising a plurality of superimposed courses of tiles, the tiles in adjacent courses being staggered relatively to each other in two directions, ribs on the tiles of said adjacent courses disposed in juxtaposed relation to the joints between tiles of adjacent courses, thereby forming with the tiles zig-zag joints extending transversely of said arch, and a binder in said joint.

5. An arch construction comprising tiles arranged in courses, in break joint arrangement relatively to each other, individual projections extending upwardly from the tiles in one course, a plurality of projections extending downwardly from the next course, said projections forming a zig-zag joint be-

tween said courses and a binder in said joint extending in a zig-zag line transversely to said arch, lower beveled surfaces at the edges of said tiles whereby the pressing of the latter into said binder is facilitated and upper beveled surfaces at the edges of said tiles arranged to form diverging spaces between adjacent tiles for the accommodation of said binder.

In testimony whereof I have hereunto set my hand.

JOHN COMERMA.