

1,304,651.

FIG. 1.

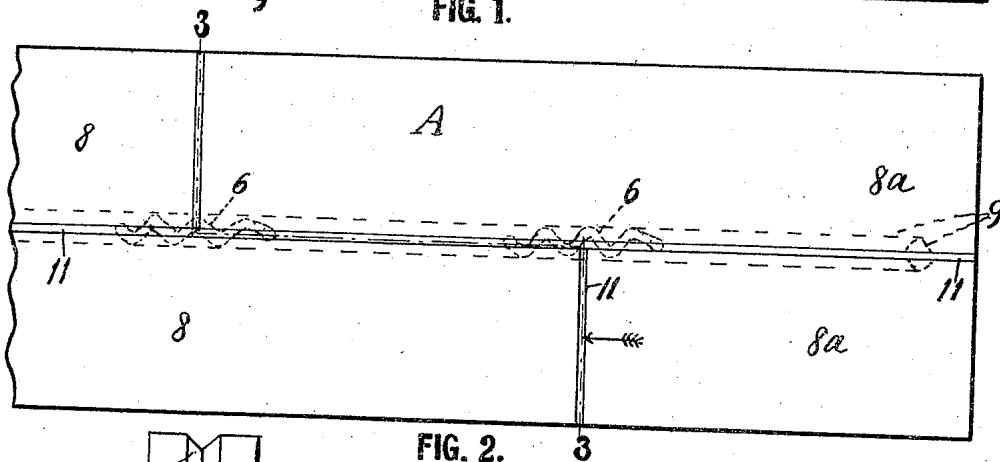


FIG. 2.

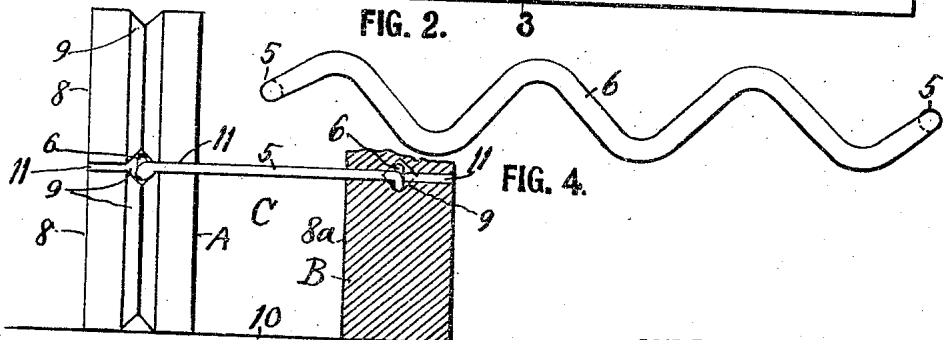


FIG. 3.

INVENTOR:

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UNITED STATES PATENT OFFICE.

DAVID E. BODINE, OF NORTH ST. PAUL, MINNESOTA.

WALL AND WALL-TIE.

1,304,651.

Specification of Letters Patent.

Patented May 27, 1919.

Application filed July 24, 1918. Serial No. 246,457.

To all whom it may concern:

Be it known that I, DAVID E. BODINE, a citizen of the United States, residing at North St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Wall and Wall-Tie, of which the following is a specification.

This invention relates to walls and wall-ties or means for securing together the parts of an artificial stone wall having air spaces within it. The object is to so secure together by cheap but efficient means the inner and outer parts of an artificial stone wall that a continuous air space be formed between the inner and outer sides of the wall; thus making the wall as non-conductive as possible for heat, dampness and frost.

In the accompanying drawing, Figure 1 is a top or plan view of a corner portion of a wall built of concrete blocks and embodying my improvements. Fig. 2 is a side elevation of a portion of a wall of the kind shown in Fig. 1. Fig. 3 is a sectional view on the line 3—3 Fig. 1. Fig. 4 is an enlarged end view of one of the new wall-ties.

Referring to the drawing by reference numerals, the improved wall-tie is made of wire, preferably galvanized iron wire, which may be square, round or of any other desired form in cross section. The wall-tie in its main or primary form is a quadrangular yoke having two parallel straight bars 5, 5, and two zig-zag bars, 6, 6, one of which contains the ends 7 of the integral wire forming the yoke. In Fig. 1 is also shown a secondary form 5*—6*, which is practically one half of the primary tie.

The cement or concrete or other artificial stones or building blocks, 8, employed may be of any desired thickness, height and length, but for ordinary walls each block may be about five to eight inches high, about four inches thick and about two feet in length, and the corner blocks may be of the L-shaped form 8^a. The upper and lower side and both ends of each block are formed with a V-shaped groove 9.

In building a wall of said blocks and ties and the required mortar, the first course of blocks is placed upon a suitable foundation or base 10, (see Fig. 3) and spaced into two walls or wall-shells, A and B, with an intervening continuous air space C, which may be about five inches across, more or less ac-

cording to the thickness of the wall and the local climatic condition.

Each tie crosses the space C and is placed with about half of the corrugated bars 6 as far as possible down into the grooves 9 in the outer and inner wall shells, the groove is then filled with mortar, part of which is spread upon the top of the blocks so as to form when compressed by the next course of blocks a mortar joint 11 of at least the same thickness as the bars 5 which extend through and braces the two shells A and B together. The mortar about the corrugated bars 6 fills the adjacent upper and lower grooves 9 at said bars 6 and along the blocks and even at the ends of the blocks. Each higher course of blocks is thus placed upon the one below it and receives and holds the upward arches of the bars 6, as shown in Fig. 3 and by dotted lines in Fig. 2, and as the grooves are V-shaped and the arms corrugated to make them fill between the bottoms of the adjacent grooves, each block is thereby guided and forced into vertical relation with the block or blocks below it, the upper groove guiding the block automatically into said relation as the block is tapped down upon the soft mortar joint, the surplus of which escapes during said process, as usually.

The ties are mostly placed over the end joints of the blocks, but may also be placed at any other part of the blocks, or even in the end-grooves of the blocks; and where applied as an auxiliary tie the same may have only one bar as 5* in Fig. 1.

It is obvious that the bar 6 may have many or few bends without diverging from the scope and spirit of this invention. It is also evident that with the air space C extending unbroken along between the outer and inner shell of the wall, it is highly difficult for the heat in a building thus constructed to escape into the cold air outside the outer shell. And likewise the air space prevents creation of moisture by direct contact of the cold and warm air.

What I claim is:

1. A wall composed of an outer and an inner parallel shell with a continuous air space between them and metallic ties secured with their ends in said shells and traversing the space between the shells; each of said wall shells composed of arti-

5 ficial stone blocks laid in courses facing each other having their adjacent faces formed with longitudinal V-shaped grooves, and said ties being formed of straight metal bars
10 extending from one shell to the other and having at their ends angular portions to be embedded in mortar in the joints of each shell and being bent zig-zag up and down so as to engage partly in the lower and partly in the upper groove adjacent each joint, and

by entering the V-shaped bottoms of the grooves guide each block into vertical relation with the block or blocks below it.

2. The structure specified in claim 1, each of said metallic ties having the form of a 15 quadrangular yoke having two of its parallel bars straight and the other two bars bent as stated.

In testimony whereof I affix my signature.

DAVID E. BODINE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."