No. 863,919. PATENTED AUG. 20, 1907.

W. V. HEINZ.

WALL TIE.

APPLICATION FILED MAR. 4, 1907.

Fig. 1.

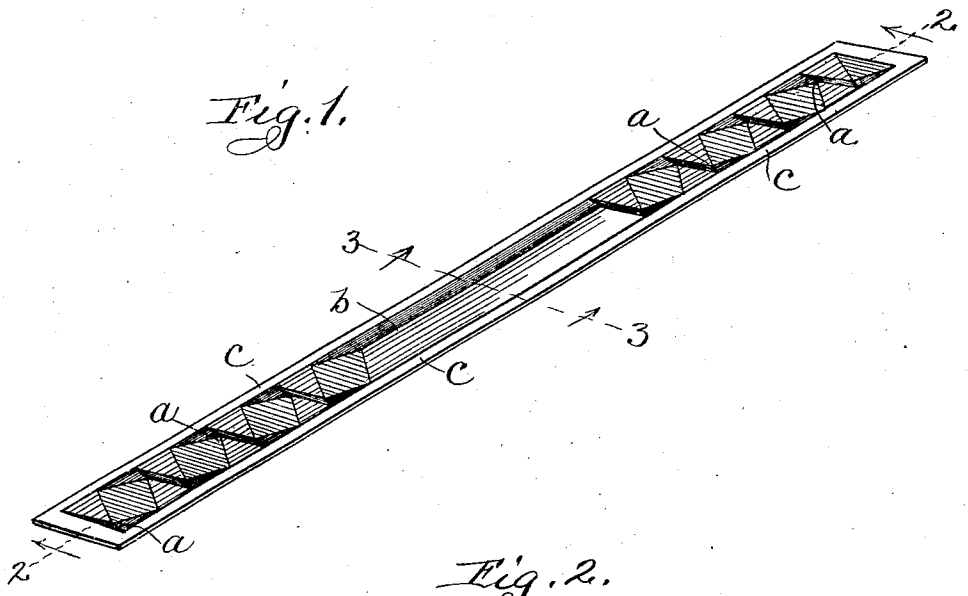


Fig. 2.

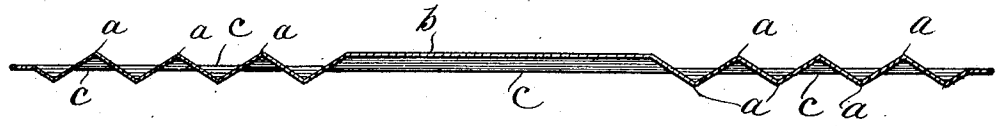


Fig. 3.

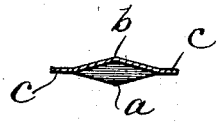
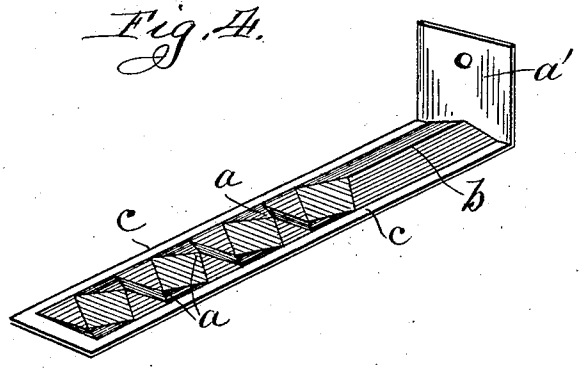


Fig. 4.



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WALL-TIE.

No. 863,919. Specification of Letters Patent. Patented Aug. 20, 1907.

Application filed March 4, 1907. Serial No. 360,409.

To all whom it may concern:

Be it known that I, WILLIAM V. HEINZ, of La Salle, in the county of Lasalle and State of Illinois, have invented certain new and useful Improvements in Wall-Ties, of which the following is a specification.

My invention relates to improvements in metallic wall-ties for brick walls and the like; and the objects of my improvements are, first, to provide a wall-tie of plate or sheet metal having anchoring parts at opposite ends and an intermediate part adapted for use in a solid brick wall of common bricks or in a hollow wall; second, to provide means for giving increased tensile strength and increased strength of anchorage of the bonding heads in the mortar joint and means for giving greater stiffness at the middle section of the tie than elsewhere; and, third, to furnish a form of tie which can be easily and cheaply made. I attain these objects by the tie made in the form illustrated in the accompanying drawing in which—

Figure 1 is a perspective view of the tie containing my improvement; Fig. 2 is a longitudinal central section on the line 2 2 of Fig. 1; Fig. 3 is a transverse section on the line 3 3 of Fig. 1; and Fig. 4 is a modification showing a form of the tie for use in a hollow wall made of wood and brick.

Similar reference letters refer to similar parts throughout the several views.

As shown, the tie is preferably stamped out of thin sheet metal which is sufficiently malleable to be swaged or upset to give it the shape or form illustrated in Figs. 1, 2, and 3, that is to say, to form bonding heads at the end portions consisting of crimpings that form projections *a* preferably along the axial line for one third, more or less, of the length of the tie and a long ridge or projection *b* at the middle portion, and leaving a flat or straight margin *c* extended the whole length of the tie and preferably on both sides or margins of the plate, outside of the projections. It is contemplated that the projections *a* measuring from the opposite vertices shall give a thickness to the article substantially equal to the thickness of the joint between the horizontal layers of brick in the wall which is approximately 3/16″ or more, and that the plastic mortar of the joint shall fill the depressions on both sides and adhere to the bricks above and below the tie, when it sets or hardens so that the tie laid in the wall and having the middle portion extended across the joint between the vertical column of brick will have enough anchorage at the end portions to bind the columns securely together. By means of the longitudinal channel forming the projection or ridge *b*, the middle portion is given greater stiffness than the end portions.

The projection or ridge *b* should not increase the thickness of the tie at the stiffer middle portion beyond the thickness of the horizontal mortar joint, the object being to have the stiffer section also embedded in the mortar when laid in a solid wall of common unrecessed bricks. This stiffer middle portion is to be extended across the vertical joints between the bricks in a solid wall, and it will better serve to secure such joints and bind the vertical columns together. It is also to be extended across the open space between the vertical columns of hollow walls and will better serve to bind the columns together and hold them suitably spaced apart by reason of having the greater stiffness at the middle section. It is noted, too, that the longitudinal strain of either pulling or pushing on the tie in use is borne in large part along the bonding heads by the straight margins *c* and that the strength of the anchorage of the heads in the mortar joint is thereby increased over what it would be if made to depend alone on crimpings made in the plate without such straight margins, as in such case the strain, when greater than the bending resistance of the metal of the crimpings, would be applied to them individually and would tend to straighten them and break the anchorage points of the mortar separately or successively.

The principle of the invention is embodied in a bonding tie made of a malleable plate and provided with a thin, flat marginal part extending preferably along both its margins from end to end of the tie, an end portion or head of the tie provided with alternately opposite depressions in the sides of the plate forming opposite corresponding projections, an intermediate section provided with a longitudinal corrugation or channel in one side forming a corresponding continuous, longitudinal projection or ridge on the other side, said depressions, corrugation and projections flanking the marginal part and being adapted to be embedded or covered in the mortar joint between the horizontal rows of common bricks laid in a solid wall, and a fastening means or head on the other end of the tie of the same or any suitable common form, the marginal part serving to increase the longitudinal strength of the tie, particularly along such recessed end section or head and in conjunction with its anchorage in the mortar joint and the longitudinal corrugation and ridge serving to increase the stiffness but not increase the thickness of the intermediate section over such recessed end section.

Obviously either of the end sections as shown in Figs. 1 and 2 may be modified as shown in Fig. 4 at *a′* to adapt the ties to be attached at one end to a wooden wall having a brick veneering, or a wall set off a distance equal to the length of the intermediate section and having the opposite part or end of the ties anchored in the mortar joint thereof.

What I claim is:

1. An improved wall-tie, comprising a malleable plate stamped or crimped to have a straight, flat marginal part extending from end to end of the tie, a section on one end of the tie provided with alternately opposite depressions

and projections, an intermediate section having a longitudinal corrugation forming a channel on one side and a ridge on the other side, the depressions and corrugation flanking the marginal part, and fastening means on the other end of the tie.

2. An improved wall-tie comprising a malleable plate of uniform width stamped or crimped, to have straight, flat margins *c* extending from end to end, anchoring means consisting of alternately opposite depressions and projections *a* and intermediate stiffening means consisting of a longitudinal corrugation and ridge *b* extended parallel with the margins.

3. An improved wall tie comprising a malleable plate stamped to have a straight, flat marginal part extending from end to end of the tie, end parts respectively provided with projections flanking the straight marginal part, along the end parts, and a section intermediate the end parts and distinguished therefrom by being provided with a continuous longitudinal channel and ridge adapted to render said intermediate section stiffer along its entire length than the end parts.

4. An improved wall-tie, comprising the straight, flat, marginal part *c*, the end sections provided with alternately opposite depressions and projections *a* flanking the marginal part, and the intermediate section provided with a long channel and ridge *b* extended along the marginal part.

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