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JUNCTION OF REINFORCED BUILDING PARTS, SUCH AS WALLS, PILLARS, AND THE LIKE.

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1,165,475. Patented Dec. 28, 1915.

Fig. 1

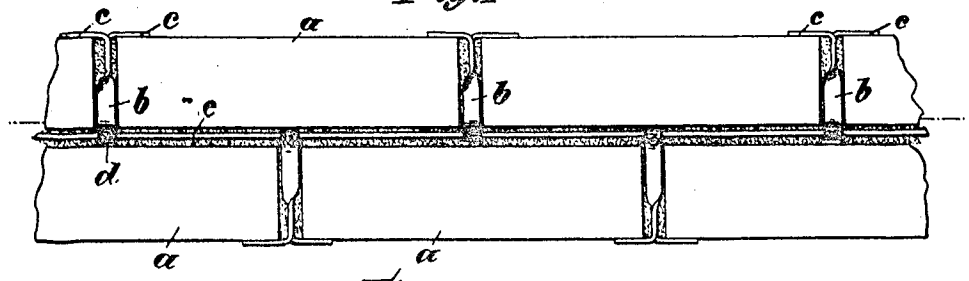


Fig. 2

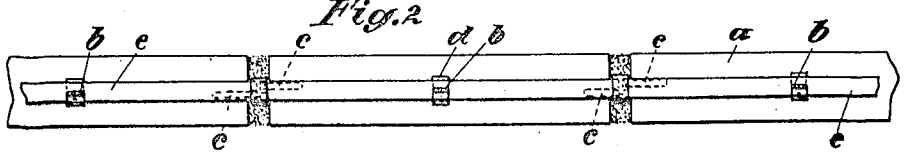


Fig. 3

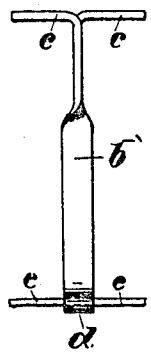


Fig. 4

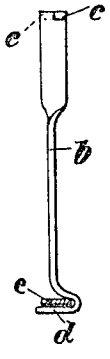


Fig. 5

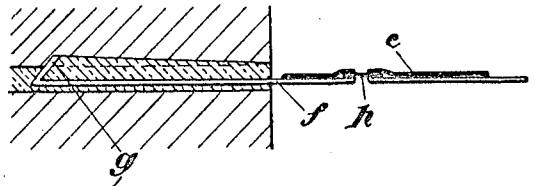


Fig. 6

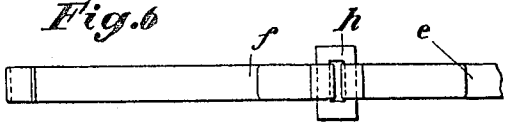
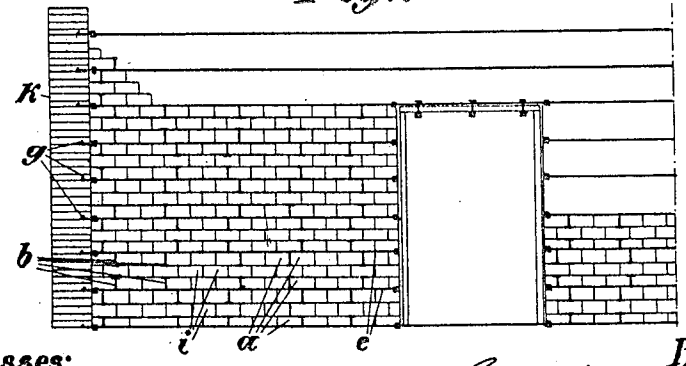


Fig. 7



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JUNCTION OF REINFORCED BUILDING PARTS, SUCH AS WALLS, PILLARS, AND THE LIKE.

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To all whom it may concern:

Be it known that I, CARL WERKENTHIN, engineer, a subject of the German Emperor, residing at Nürnbergerstrasse 69ª, Berlin, Germany, have invented certain new and useful Improvements in Junctions of Reinforced Building Parts, such as Walls, Pillars, and the like, of which the following is a specification.

The invention relates in general to reinforced building parts such as walls, pillars, and the like, and in particular to the junction of such parts by means of their iron components.

As to walls my invention has to do especially with suspended walls, and as to pillars especially with corner pillars, but also other walls and pillars may be built up and united with each other in the manner hereinafter described.

When constructing a reinforced suspended wall in the manner hitherto employed, the first step was to form a netting of wire or the like which was closed at all sides and intended to receive the bricks or the like, and the second step was to fill up that netting with the bricks or the like. This procedure, however, entails many a drawback, since a wire netting stretched out already before the bricklaying is very inconvenient for the bricklayers and, furthermore, special auxiliary or assistant hands are required, and, what is, perhaps, worst of all, the wire netting must be completely filled up without any interruption in the bricklaying in order to let the bricks and the iron wall bind with the mortar and the like in the joints. Finally, fitting the bricks which are already covered with the mortar into the already stretched wire netting is a tedious labor, and it is practically pretty much a matter of chance whether or not the mortar remains adhering to the bricks. These drawbacks are completely overcome by the present invention, the gist of which consists first in arranging the continuous iron bars or rods of the longitudinal joints solely between two layers of bricks which are separated from each other by one or more layers without reinforcing irons; second, in arranging the reinforcing irons of the cross joints alternately with respect to said longitudinal bars, in such a manner, that the first, the third, the fifth, and so on, extend downward, the second, the fourth, the sixth, and so on, upward; and third, in connecting the longitudinal and the cross irons with each other by means of hooks formed at the respective end of said latter irons, cutting and bending the other end of these irons into T-shape, and letting the legs of the T take alternately below the lower surface of the lower layer of bricks and above the upper surface of the upper layer of bricks, after the anchors or outer ties belonging to the continuous irons of the longitudinal joints have already been connected with the pillars and the mortar of these has bound. This manner of operation makes it possible to embed the longitudinal irons only in a measure proportional to the progress of the brickwork, said irons being then rigidly connected with the respective ties by buckles, clasps, or the like. The work may be interrupted whenever desired without any diminution of the stability, and without disturbing the binding of the mortar of the layers already set.

The annexed drawings shows one form of construction of my improved junction.

Figure 1 is a front-view of a wall constructed according to my invention, the joints being shown in section; Fig. 2 is a horizontal section through this wall; Fig. 3 is a plan of a cross iron, as employed in my invention; Fig. 4 is a side view of this iron; Fig. 5 is a side view partly in section of the manner of connecting the longitudinal iron bars with the pillars; Fig. 6 is a plan of the iron parts shown in Fig. 5, and Fig. 7 is a part of a reinforced wall as built up according to this invention.

Before building up the wall *l*, first the pillar *k* is built up and at the same time the anchors *f* for the longitudinal reinforcing irons are put, and secured, in place, in such a manner, that the angularly bent end of each anchor is embedded in a suitable conical cavity, as shown in Fig. 5. As soon as the mortar inclosing an anchor has bound in the pillar *k*, the first layer *a* of the bricks may be set; after that the longitudinal *e* which preferably consists of band iron is drawn over that layer, in the middle of same, and is connected with the anchor *f g* by a buckle or clasp *h*, the ends of the anchor proper and of the longitudinal *e* being passed through that part *h* and bent rearward, as shown in Figs. 5 and 6. While thus drawing the longitudinals, they are

placed into the projecting hooks *d* of the downwardly extending cross irons *b*, the lower legs of each of which take below the lower surface of the two adjacent bricks concerned. These irons are brought in place simultaneously with laying the bricks of the respective layer, and after this latter has been covered with the proper layer of mortar, simultaneously with attaching the alternate, upwardly extending cross irons to the longitudinals, the bricks of the next layer are brought in place, the legs of said latter irons taking over the upper surface of the said latter bricks. This layer is followed by a layer, or several layers, without any reinforcing parts, but then two layers of the kind just described and as shown in Fig. 1 are built up, the manner of procedure being exactly the same as above stated.

The parts *b* are also formed of band iron, and each of them is turned in itself for 90 degrees, as represented in Figs. 3 and 4, the legs *c c* of the T extending in the direction of the wall, and the hooks *d* extending crosswise thereto, and the longer part of the body serving for determining the width of the joint. By connecting two layers of bricks by one longitudinal reinforcing bar or band and by the alternately arranged cross or vertical bands or T hooks, I am enabled to combine the reinforced or armored layers with not reinforced or non-armored layers, as the other layers, owing to the junction of their horizontal bands with the pillar or pillars or with another wall or other walls, form suspended, horizontally extending wall strips or stripes, each of which is capable of supporting one layer or several layers of ordinarily laid bricks. And as the mortar in each joint remains at rest and can bind without being disturbed, the union of all parts with each other is very intimate and the stability of the whole is remarkably great.

The shape of the anchor *f g* may be different from that shown in the drawing, but it is important that the union of the anchors with the bars or bands *e* is effected only after the mortar of the pillar has bound. At any rate, a wall thus constructed is not only suspended when connecting two pillars or two walls or a pillar and a wall, but is even capable of overhanging in a certain measure without losing a material part of its bearing capacity.

Claims:

1. Wall structure suspended between two pillars comprising longitudinal reinforcing irons, anchors at the ends of said irons for anchoring the same in said pillars, a layer of bricks supported by said irons, vertical cross-irons embedded in the binding material between two bricks, head portions on said cross-irons gripping alternately over the upper face of the bricks of one layer and the underface of the bricks of the over layer, and hooks at the end of said cross-irons opposite to said head portions for gripping over the longitudinal reinforcing irons, substantially as described.

2. In a wall structure of the character described, suspended between two pillars, the combination of horizontal flat irons extending through the entire length of the brick work secured with their ends to said pillars, with anchor irons alternately secured to one of these flat irons located in the seams between two bricks and having their upper and lower ends alternately split to form T irons adapted to grip alternately over the upper faces of the bricks above said flat irons and the lower faces of the bricks beneath said horizontal irons, substantially as described.

3. In a wall structure of the character described, suspended between two pillars, the combination of horizontal flat irons extending through the entire length of the brick work secured with their ends to said pillars, with anchor irons alternately secured to one of these flat irons located in the seams between two bricks and having their upper and lower ends alternately split to form T-irons adapted to grip alternately over the upper face of the bricks above said flat irons and the lower faces of the bricks beneath said horizontal irons, and intermediate rows of bricks between the course or rows which are reinforced, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CARL WERKENTHIN.

Witnesses:

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HENRY HASPER.

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