No. 670,707.

Patented Mar. 26, 1901.

W. H. FISHER & C. BROUSE.

WALL CONSTRUCTION.

(No Model.)

(Application filed Oct. 22, 1900.)

Fig. 1

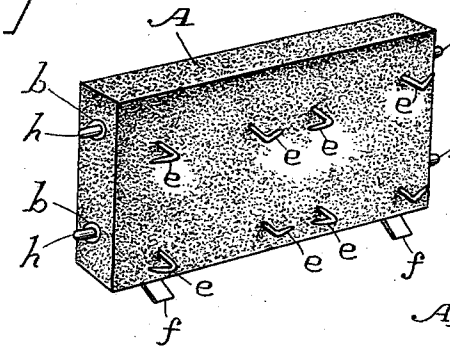


Fig. 2

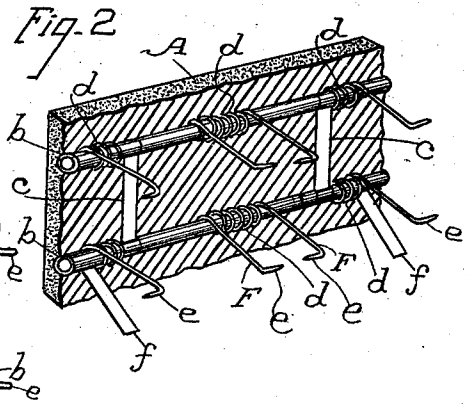


Fig. 3

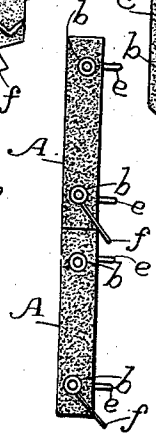
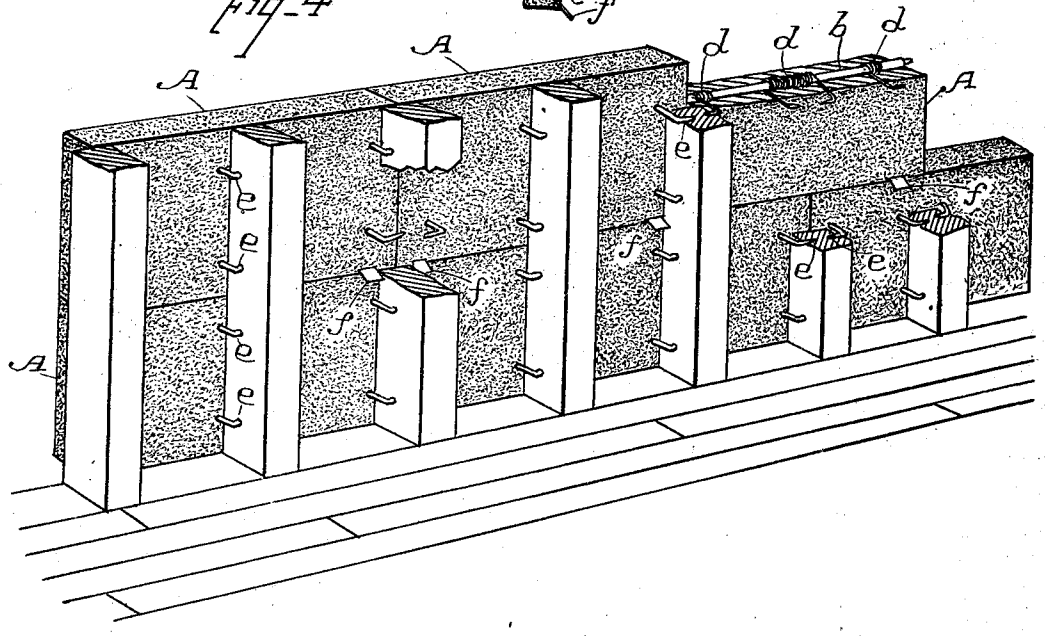


Fig. 4



WITNESSES

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WILLIS H. FISHER AND CLAUDE BROUSE, OF SAN FRANCISCO, CALIFORNIA.

WALL CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 670,707, dated March 26, 1901.

Application filed October 22, 1900. Serial No. 33,999. (No model.)

To all whom it may concern:

Be it known that we, WILLIS H. FISHER and CLAUDE BROUSE, citizens of the United States, residing in the city and county of San Francisco, State of California, have invented a certain new and useful Improvement in Wall Construction; and we do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

Our invention relates to that class of wall construction in which blocks, slabs, or tiles made of concrete or cement are used in place of weather-boarding or rustic boards to form a siding for frame structures; and it consists, first, of a concrete block, slab, or tile which is stiffened and strengthened by metal incorporated in the body of the concrete, thereby avoiding the necessity of a wooden or other back-piece heretofore applied to such blocks, slabs, or tiles; secondly, of a simple and effective fastening device for attaching and anchoring such blocks, slabs, or tiles to the framework of the structure, and, thirdly, of a simple means and device for holding the block, slab, or tile in proper alinement when it is superposed and in place, all as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a back view in perspective of one of our blocks, slabs, or tiles when completed. Fig. 2 is a longitudinal vertical section in perspective, taken through the center of the block, slab, or tile. Fig. 3 is a transverse section taken through one end of a block, showing the toe-piece for holding the block in place; and Fig. 4 is a back view in perspective of a wall in course of construction, showing the fastening and anchoring devices.

A represents a block, slab, or tile, which is formed of cement or concrete either cast or made under pressure. Heretofore these blocks, slabs, or tiles have been connected with a wooden back-piece to give them rigidity and strength; but experience has demonstrated that blocks, slabs, or tiles thus backed are liable to crack and disintegrate by reason of the swelling and shrinking of the wooden back-piece, particularly when the wood becomes damp or wet.

In the manufacture of our blocks, slabs, and tiles we use no back-piece whatever; but we incorporate in the body of the block during the process of casting or manufacturing a metal framework, which becomes an integral part of every block, slab, or tile when finished. This framework consists of two metallic rods or tubes *b b*, one near each longitudinal edge of the block, slab, or tile and connected by two or more transverse metal bars, plates, or rods *c c*. This framework is embedded in the plastic material in the process of manufacturing the block, slab, or tile, preferably midway between its face and back, so that when the material of which the block is made hardens the metal framework will be embedded in it and form an integral part of the block structure.

The transverse pieces *c c*, although advantageous, are not indispensable, as the longitudinal rods or tubes *b b* will give sufficient strength for practical purposes. Before embedding these rods or tubes *b b* in the cement or concrete mixture we take strong pieces of wire *d d* and wrap a portion of its mid-length around the rods or tubes *b b* at suitable points in the length of the block and allow the ends of the wires to project through the back portion of the block, slab, or tile and extend to a distance from its back, as shown at F, Fig. 2. These wire fastenings can be placed wherever they will be convenient to fasten them to the studding or posts of the framework, and their extremities may be bent to form hooks or nails *e*.

In order to keep the blocks, slabs, or tiles in proper alinement when they are superposed in a structure, we insert a short metal bar or plate *f* transversely in the cement or concrete, near each end of the block, at such an angle downward and backward that a portion of its length will project at an angle rearward from the lower rear edge of each block and form a toe-piece that will prevent the blocks from becoming displaced, as the angularly-projecting toe-piece will keep the top edge of the underlying block pressed forward to its proper position to preserve the alinement even when the greatest strain is applied to the fastening or anchoring wires.

To keep the end edges of the blocks or tiles in position, we insert a metal rod or pin *h* in

each end of the tubes *b*, so that it will project and enter the ends of the tubes of the adjoining blocks and form dowels that serve to keep the ends of the blocks in line. These pins can be made slightly tapering, so that they will fit tightly; but if solid bars or rods are used instead of tubes the projecting pin will be formed on one end of each rod or bar and a socket in the opposite end to form dowels in the same manner. Walls built of these homogeneous blocks will not crack or check. Water may be poured over them without affecting their integrity, and the fastening devices are simple and effective.

The blocks may be made of any shape required in wall construction and the incorporated metal bent to accommodate the required shape.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A composite slab or tile composed of concrete or cement having a metallic rod, bar or tube embedded longitudinally in its structure near each longitudinal edge, said rods, bars or tubes having their extremities constructed to receive dowels for uniting the slab or tile in which they are embedded with adjoining slabs or tiles, substantially as described.

2. A concrete slab or tile for facing walls having metallic rods or bars embedded in its structure; dowel-pins adapted to connect the ends of the rods or bars, and one or more bars or plates partially embedded in the concrete so that a portion of the length of each bar or plate will project downward and backward from the lower rear angle of the slab or tile, substantially as described.

3. A composite slab or tile having a metallic bar or plate embedded in the concrete at an angle to the lower edge of the slab or tile, so that a portion of the bar or plate will project downward and backward from the lower rear angle of the block or tile substantially as described.

4. In wall construction, composite blocks having metallic bars, tubes or rods embedded longitudinally in the body of the blocks, and dowel-pins connecting the ends of the metallic bars tubes or rods, substantially as described.

In witness whereof we have hereunto signed our names this 17th day of October, A. D. 1900.

WILLIS H. FISHER.
CLAUDE BROUSE.

Witnesses:
WILLIAM HALE,
T. C. KIERULFF.