No. 640,526. Patented Jan. 2, 1900.

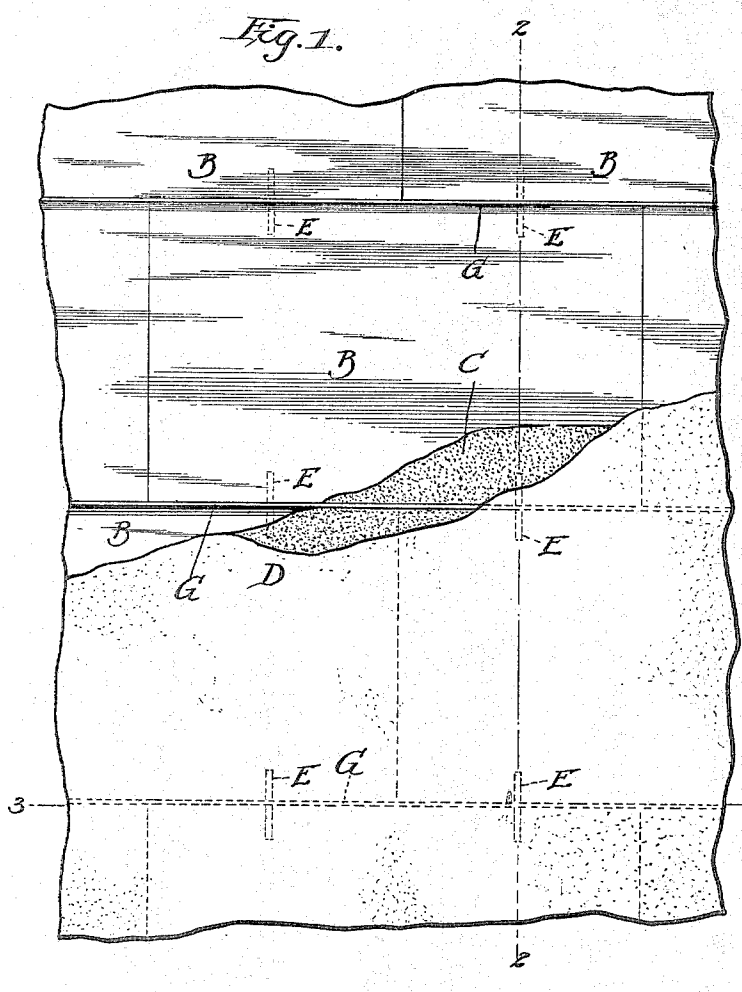
H. W. BELL.

CONSTRUCTION OF WALLS.

(Application filed Oct. 10, 1899.)

(No Model.)

Fig. 1.



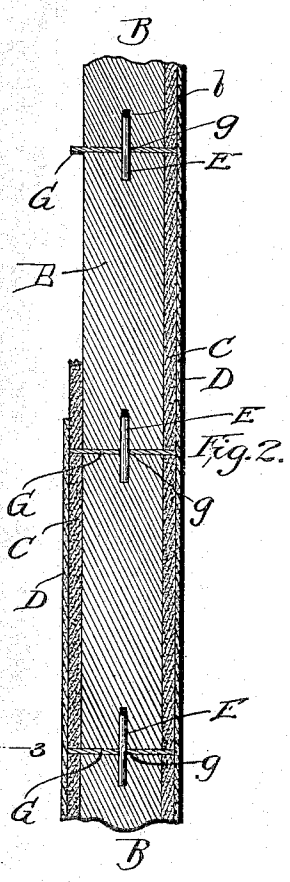
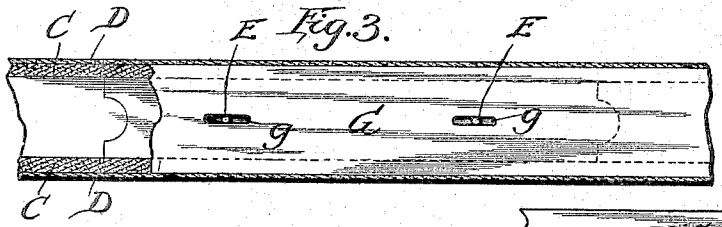


Fig. 2.

Fig. 3.



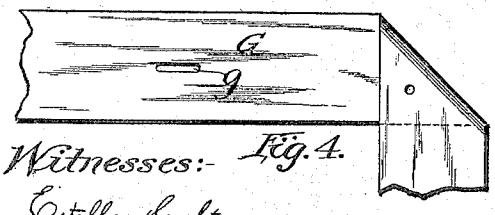


Fig. 4.

Fig. 5.

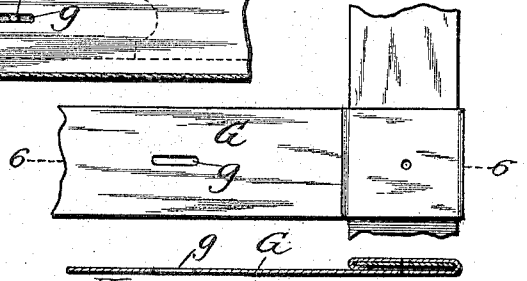


Fig. 6.

Witnesses:-
Estella Soult.
J. B. Clautice.

Inventor,
Harry W. Bell.
By Thomas Drew Stetson Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HARRY W. BELL, OF NEW YORK, N. Y.

CONSTRUCTION OF WALLS.

SPECIFICATION forming part of Letters Patent No. 640,526, dated January 2, 1900.

Application filed October 10, 1899. Serial No. 733,128. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. BELL, a citizen of the United States, residing at New York, in the borough of Manhattan and State of New York, have invented a certain new and useful Improvement in the Construction of Walls, of which the following is a specification.

I will describe it as applied in a partition-wall in a building.

I can use ordinary tiles or building-blocks and ordinary covering material of strong, coarse, and fine surface plastering on each face, sometimes known as "scratch" coat and "white" coat, with all the strength due to these, and I add thereto by both metal strips and metal dowels. The additions as I introduce them are so efficient that I can construct the partition successfully without any mortar between the bricks or blocks except such as gushes into the joints in the act of applying the scratch coat. My metal strips are provided with longitudinal slots which apply closely to the dowels one way, but allow much room for irregularities in the positions of the dowels in the direction lengthwise of the partition. My strips are folded, so as to give great strength at any angles in the partition.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side view of a portion of the wall partly constructed. Fig. 2 is a vertical cross-section, and Fig. 3 is a plan view, of the wall complete. Fig. 4 is a plan view of a portion folded to serve in an angle where such is required. Fig. 5 is a plan of a portion to serve in a junction or T where two partitions join, and Fig. 6 is a section on the line 6 6 in Fig. 5.

Similar letters of reference indicate like parts in all the figures where they occur.

B B, &c., are the several blocks or tiles which being set on edge one upon another in regular tiers constitute the core or heart of the partition. One end of each is grooved, and the opposite end is formed with a smaller ridge to match therein, but the upper and lower faces are plain. C and D are two coats of plaster on each face, the under coat C giving strength and the outer white coat or hard finish making the proper final facing.

I mold or otherwise produce in the tiles holes *b b*, arranged to lie about equidistant in the upper edge of each tier, and insert in them dowels E of low steel of such length as to project above the face and be received each in a corresponding hole in the tile above.

G is a strip of iron or low steel of a width about an inch or something less greater than the thickness of the tile-body of the partition. Along its center line I produce slots *g*, adapted to engage the dowels. Where a corner occurs, I fold the metal of the several strips G obliquely across and flatten the bend, so that it takes up little vertical space. Where a T-junction occurs, I fold the metal squarely across and fold twice, as shown in Fig. 6. If the strips can be conveniently provided in just the length required for the several partitions and sections thereof allowing for door-openings, I employ such, but there is little difficulty in cutting off the strips if too long or in piecing if too short. The slots *g* accommodate the pins if they are set irregularly, allowing each to take any position longitudinally of the strip and of the partition, but bracing the strip and the heart or core blocks relatively to each other laterally. Mortar may be applied in putting the several tiles B *b* in place, if desired, and if this is not done the plaster when applied is certain to flow inward in the several joints between the bricks E and fill the remainder of each slot not previously occupied by the proper dowel E.

I attach importance to the width and the positioning of the strips G, making each of a width just sufficiently in excess of the thickness of the tiles or blocks and placing and holding it so that its edges shall serve as gages to aid the plasterer in applying an even and just sufficient thickness of strong plastering for the scratch coat. It is of no consequence if the edge of the iron appears in the surface of this coat. It is sure to be well covered by the hard finish. The strips may be so thin as to be doubled and trebled in thickness without involving serious difficulties. Fig. 4 shows the folding of the strips to turn a right

angle. A different obliquity will give a proper fold for obtuse angles. A little care is required at these points. If a slot *g* is not properly presented, two round holes may be punched in the fold and a dowel inserted therein, taking care to have holes in the blocks B to match.

Figs. 5 and 6 show the construction of a junction. The ridge in the end of each tile engages in the corresponding groove in the next tile, so that the vertical joints between the tiles lock together in the manner known as "tongue and groove." This holds the several blocks or tiles very strongly in their places laterally.

Modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention.

I prefer that the strips G be about a sixteenth of an inch thick, ($\frac{1}{16}$;) but this and all the other dimensions may be varied within wide limits. The strips and the dowels may for special situations be treated to provide against corrosion or oxidation, but such will not be usually expedient. The material may be other than iron or low steel. For ordinary partitions the blocks B may have a thickness of two or three inches and any length and height convenient. The slots *b* may have each a length of one and a quarter inch and a breadth of five-sixteenths of an inch, the dowels having a diameter of a quarter-inch and a length of several inches, the latter dimensions and the depth of the holes being dependent in part on the vertical height of the several tiles B.

The strips and dowels may be used at every horizontal joint or at alternate courses or even still more rarely. They will contribute to the strength and durability under all conditions.

The tiles may be of burnt clay, solid or hollow, or of any other approved material. I prefer strong light blocks made cold from sulfate of lime (plaster-of-paris) and fine cinders.

Longitudinal slots may be made instead of round holes for the holes *b b* in the lower edges of the several blocks B.

I claim as my invention—

1. A wall comprising tiles or blocks B *b* dowels E and strips G lying in the plane horizontal joints between said tiles combined and arranged to serve substantially as herein specified.

2. A wall comprising tiles or blocks B *b* having tongue-and-grooved vertical joints, dowels E and strips G lying in the plane horizontal joints between said tiles, combined and arranged to serve substantially as herein specified.

3. A wall comprising blocks B *b* dowels E strips G and two coats of plaster C D the several strips serving the double functions of strengthening the wall and gaging the thickness of the inner or scratch coating as herein specified.

4. The blocks B arranged in tiers, the upright dowels E set in holes *b* arranged in the mid-thickness and the strips G having slots *g* of about the same width as the dowels also centrally located and extending longitudinally to allow for variations in the intervals between the dowels all substantially as herein specified.

5. The blocks B arranged in tiers, the upright dowels E set in holes *b* arranged in the mid-thickness and the strips G having slots *g* of about the same width as the dowels also centrally located and extending longitudinally to allow for variations in the intervals between the dowels, the strips being folded upon themselves to match to the angles in the wall with a dowel inserted through the fold to secure the blocks at those points, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

HARRY W. BELL.

Witnesses:
THOMAS DREW STETSON,
J. B. CLAUTICE.