

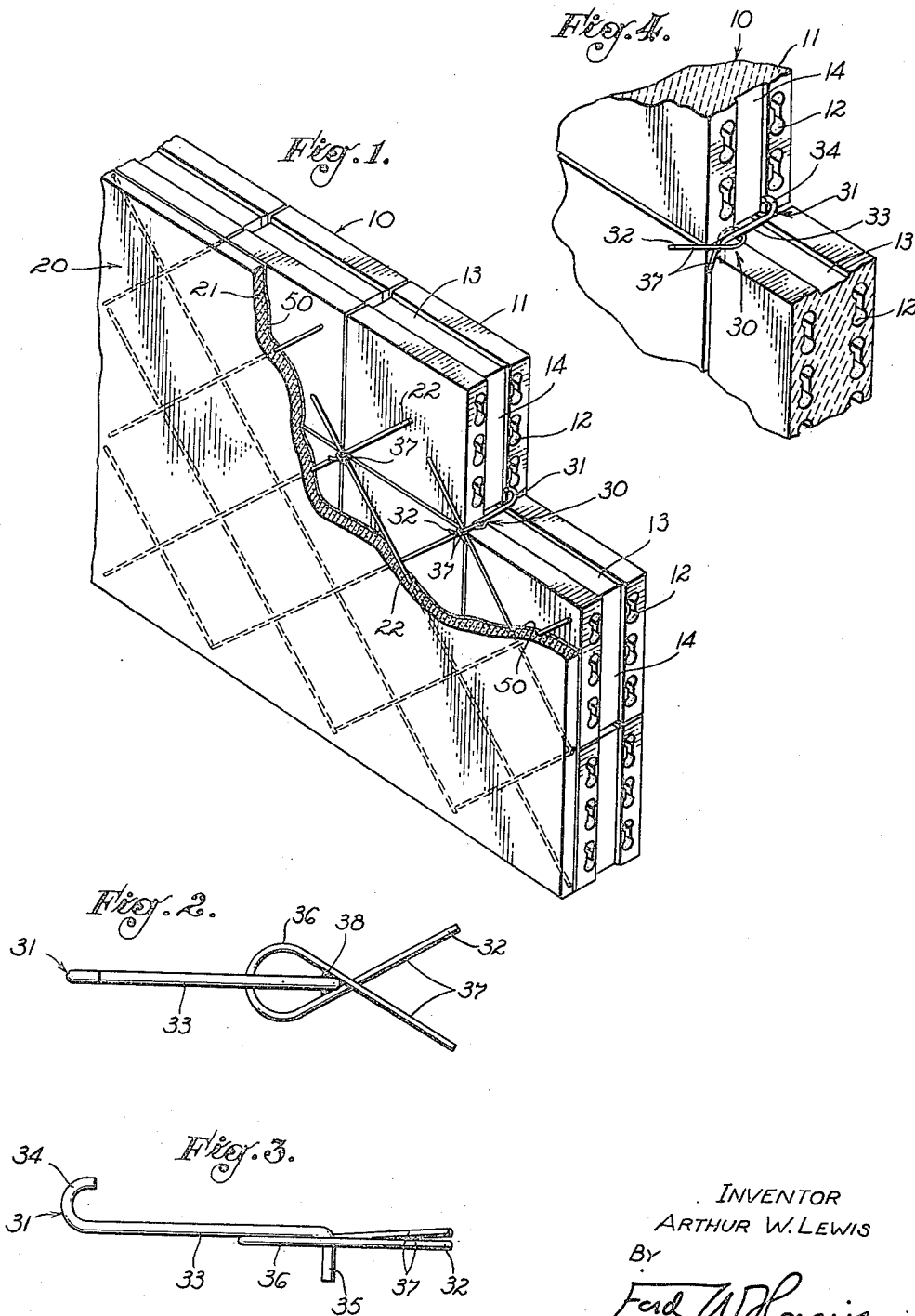
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WALL CONSTRUCTION

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WALL CONSTRUCTION

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4 Claims. (Cl. 72-40)

My invention relates to the art of constructing buildings, and while not limited to such structures may be advantageously applied to production of the walls or partitions in a building having a frame. Such buildings are ordinarily so designed that the greater portion of the weight of the building is carried on the frame, each of the walls being set into the frame in small and ordinarily rectangular units, there being little or no load imposed on any portion of any wall unit except that load produced by the weight of the unit itself. The weight of each unit of the wall above the ground floor is, however, carried on the frame, and the load so imposed on the frame constitutes a considerable portion of the total load imposed on said frame. It is recognized that the lighter the wall units, the less the load on the frame and consequently the less material that must be used in the frame.

It is an object of my invention to provide a wall unit which is light in weight, of low first cost, which has a high heat and sound insulating value and which is very durable. Such a wall unit, while applicable to framed buildings, may also be applied to other uses. I use in such a wall cast gypsum blocks. Such blocks are very light and have a high heat and sound insulating value, but they have not been previously used for this purpose since they are not very hard and are easily injured by blows of harder objects. They are also not highly weather and moisture resistant. It is a further object of my invention to provide a wall in which gypsum blocks provide the necessary low weight, good sound, and heat insulating properties, but which is faced with a harder material.

If harder materials, such, for example, as ordinary concrete, are used to face walls made of gypsum, even though the facing material is applied to the face of the gypsum wall while in a plastic condition, it is impossible to obtain a firm, permanent bond between the wall and the facing after it is hardened, especially if it is in the form of a thin layer, as it tends to flake off from the wall. It is a further object of my invention to provide positive permanent securing means by which a thin layer of concrete or other facing material may be securely attached to a base wall formed of gypsum blocks.

Further objects and advantages will be made evident hereinafter.

In the drawing, which is for illustrative purposes only,

Fig. 1 is an isometric view showing a wall embodying my invention;

Fig. 2 is a plan view of the anchor and tie means;

Fig. 3 is a side view of same; and

Fig. 4 is a view of the anchor means in place in the wall during construction.

My wall consists of a base wall 10, a facing 20, and connecting means 30. The base wall 10 is built up of gypsum blocks 11 which are shown as parallelepipedal in form, and which have cavities 12 passing therethrough, which have grooves 13 on the top and bottom, and grooves 14 on the sides thereof. The facing 20 consists of a layer of concrete or other plastic material 21 in which are embedded diagonal reinforcing rods 22. A connecting means 30 consists of anchors 31 and tie members 32. The anchors 31 are each formed of a steel rod bent as shown in Fig. 3 and when so bent having a central portion 33 and bent ends 34 and 35. The tie members 32 are each formed of bent wire having a bight 36 and projecting ends 37. This wire 32 is secured to an anchor rod 31 by welding as shown at 38.

The method of building the wall is as follows: The gypsum blocks 11 are laid up in courses to form the base wall 10, gypsum in plastic form or a gypsum mortar being placed between the blocks 11 as they are laid up, filling or partially filling the grooves 13 and 14 and projecting slightly into the cavities 12 as it hardens so that the individual blocks are cemented together and held in mutual alignment.

The anchors 31 are placed in the base wall 10 as it is being laid, the bent ends 34 and 35 being preferably between vertical faces of adjacent blocks 11, and the central portion lying horizontally between the blocks, the anchors being embedded in the gypsum mortar. The bights 36 of the tie members 32 are also embedded in the mortar but the ends 37 project from the face of the base wall 10. Suitable waterproofing 50 is then applied to the exterior face of base wall 10. The diagonal reinforcing rods 22 are then placed in the space immediately adjacent the face of the base wall 10 and are secured in place by bending or twisting the ends 37 of the wires 32 around the rods 22.

The concrete or other facing 21 is then applied to the face of the base wall 10 preferably by the use of a pneumatic gun in such a manner as to cover and embed the reinforcing rods 22. The concrete as it hardens forms a hard weather-resisting facing which is locked to the base wall 10 by means of the anchors 31 and the tie wires 32 which are secured to the reinforcing rods 22 embedded in this facing.

The base wall 10 is very light in weight due to being formed of the light gypsum blocks 11 and has high heat and sound insulating values due partly to the use of gypsum and partly to the cavities 12. The facing 20 is very light since it is quite thin, and since it is composed of reinforced concrete is quite strong and weather resistant. The facing 20 and the base wall 10 are solidly tied together by the connecting means comprising the anchors 31, the tie wires 32, and the rods 22, and it is a feature of my invention that this connecting means is self-sufficient to unify the facing with the base wall permanently and adequately independent of any adhesive bond between the confronting surfaces of the facing and the base wall. The effectiveness of the anchorage to the mortar between the blocks of the base wall does not depend solely upon adhesion between the mortar and the anchoring means, since the anchoring means is deformed or bent to engage the mortar in a positive manner. Engagement with the mortar that is positive in the sense indicated depends upon constructing the embedded anchor to have a cross-sectional profile within the mortar of greater area than the cross-section of the anchor at the point of entrance into the mortar.

By the above construction a wall is formed which is light, has high insulation values for sound or heat, and which is very durable. Due to its light weight, it permits lighter frames and footings to be used in buildings in which it is used than would be possible if masonry or other common forms of material were used.

While I have described specifically and in detail one embodiment of my invention so that one skilled in the art may construct walls in accordance therewith, it is understood that I am not limited to these structural details and the full scope and nature of my invention is defined wholly by the following claims.

I claim as my invention:

1. A wall structure comprising: a plurality of building blocks laid to form a base wall of substantially uniform thickness; poured mortar between said blocks locking said blocks together; anchor members embedded in said poured mortar between said blocks; reinforcement means crossing the space adjacent to the face of said base

wall; means for securing said reinforcement means to said anchor members; and a facing of concrete-like material applied to the face of said wall in which said reinforcement rods are embedded.

2. A wall structure comprising: a plurality of building blocks laid to form a base wall of substantially uniform thickness; poured mortar between said blocks locking said blocks together; anchor members embedded in said mortar between said blocks; reinforcement rods crossing the space adjacent to the face of said base wall; wire tie members secured to said anchor members in such a manner that they project into said space for a sufficient distance to be bent around said reinforcement members; and a facing of concrete-like material applied to the face of said wall in which said reinforcement rods are embedded.

3. A wall structure comprising: a plurality of building blocks laid to form a base wall of substantially uniform thickness; poured mortar between said blocks locking said blocks together; anchor members embedded in said mortar between said blocks; reinforcement rods crossing the space adjacent to the face of said base wall, said reinforcement rods being disposed diagonally with relation to each block; means for securing said reinforcement rods to said anchor members; and a facing of concrete-like material applied to the face of said wall in which said reinforcement rods are embedded.

4. A wall structure comprising: a plurality of building blocks laid to form a base wall of substantially uniform thickness; poured mortar between said blocks locking said blocks together; anchor members embedded in said mortar between said blocks; reinforcement rods crossing the space adjacent to the face of said base wall, said reinforcement rods being disposed diagonally with relation to each block; wire tie members secured to said anchor members in such a manner that they project into said space for a sufficient distance to be bent around said reinforcement members; and a facing of concrete-like material applied to the face of said wall in which said reinforcement rods are embedded.

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