March 3, 1931. E. M. WYATT 1,794,572

COMPOSITE BRICK

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Fig. 1.

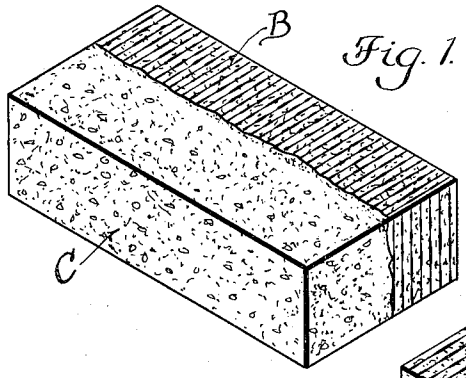


Fig. 2.

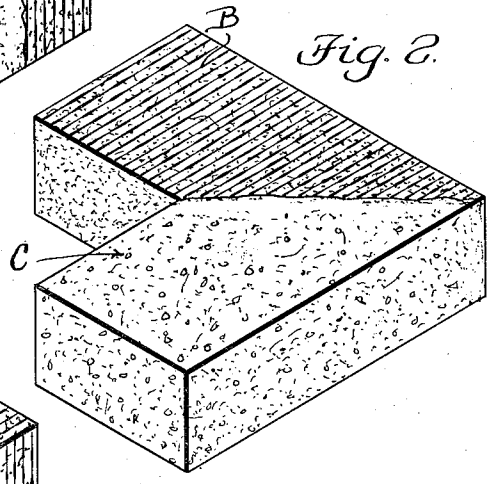


Fig. 3.

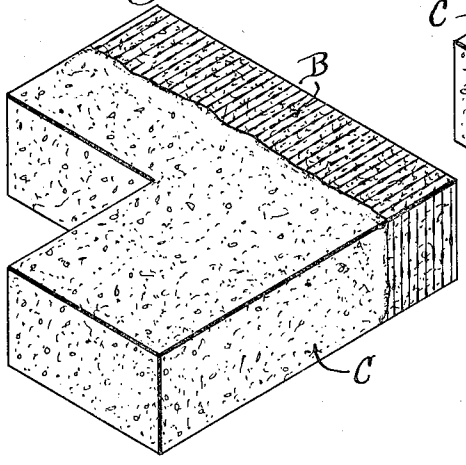
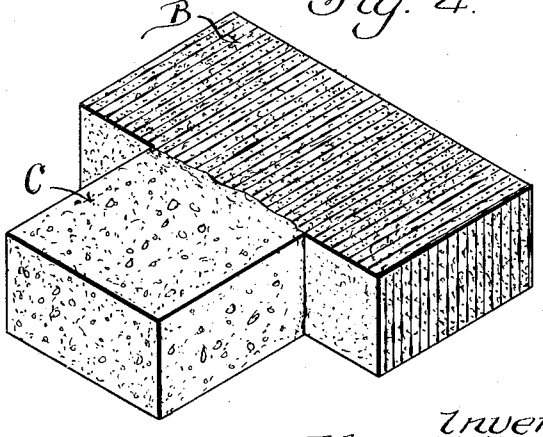


Fig. 4.



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Fig. 5

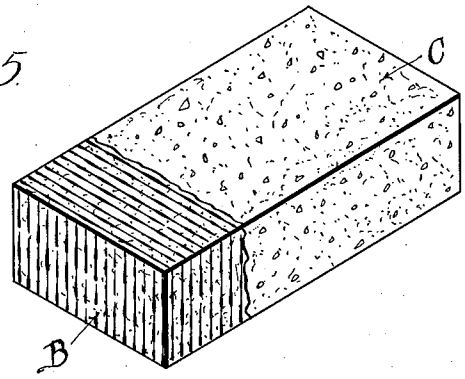


Fig. 6

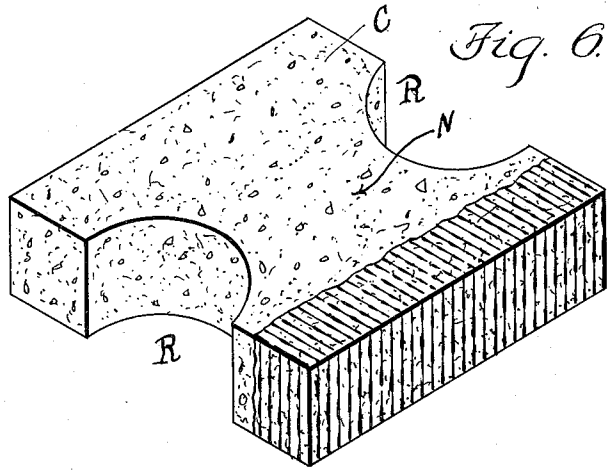
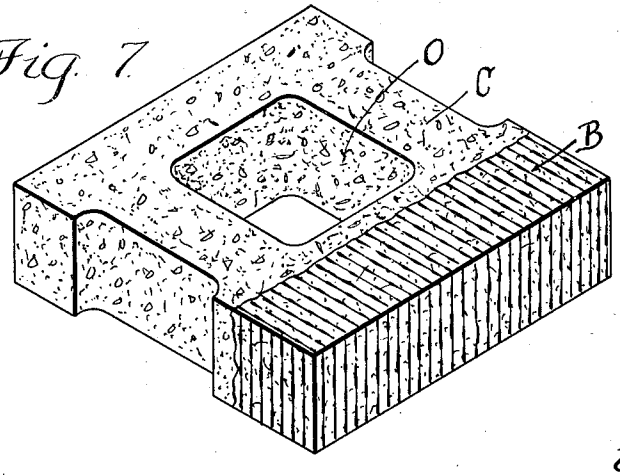


Fig. 7



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UNITED STATES PATENT OFFICE

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COMPOSITE BRICK

Application filed December 17, 1928. Serial No. 326,517.

This invention relates to the improvement of wall building bricks by making them dual in composition, one part of burned clay and one of concrete having the characteristics hereinafter referred to. It has for its objects the following:

(*a*) The facing of the portions exposed in a wall with relatively expensive and ornamental burned clay, while the unexposed portion is made of cheaper and less attractive concrete.

(*b*) The facing of the portion exposed in a wall with burned clay, desirable for its weather resistance and beauty, and the unexposed portions made of concrete that possesses other qualities in a superior degree to the burned clay, such as lighter weight, better insulation against heat and cold, better sound deadening, more impenetrable to moisture, better plaster base, and the ability to receive and hold nails driven into it.

(*c*) The forming of the concrete portion by molds or forms into more intricate and desirable forms than are practical in present day methods of manufacturing clay bricks.

(*d*) The provision of a dual composition brick, the joint between the components of which is characterized by the absence of means for keying them together.

In particular, it is often quite desirable to provide a building unit having proper dimensions to fit into and harmonize with the brickwork of the wall facing, and at the same time provided with a rearwardly projecting lug or extension adapted to furnish a lug or abutment for the nailing of lathing, furring strips, or other constituents required in connection with brickwork. It is thus desirable to provide a plastic composition which will readily bond with or adhere to a brick or brick section and thus constitute an integral portion of a building unit, which portion will be sufficiently porous to permit the nailing of furring strips, lathing or the like, directly to the masonry of the wall.

It has been found that the aggregate known as "Haydite," and described in detail in Reissue Letters Patent No. 16,750, dated September 27, 1927, is a material which lends itself readily to the requirements of a composite brick having the characteristics above set forth, and the present invention makes use of such an aggregate as that defined in the patent above referred to, or one which affords like characteristics which well adapt it to the requirements of the present invention.

Although the present invention relates in particular to a composite brick having a rearwardly extending lug adapted, when the brick is laid in a wall, to protrude from the normal inner surface of the wall, nevertheless, it is not the intention, unless otherwise indicated, to limit the invention to a brick of this special configuration, since the composite bricks may be variously configured and at the same time utilize the features of invention to be pointed out in the present specification.

In the drawings:

Figure 1 is a perspective of a building unit of standard configuration, having a brick facing and a composition backing;

Figs. 2 and 3 are perspective views showing lug bricks of L-shaped formation;

Fig. 4 is a perspective view of a lug brick of T-shaped formation;

Fig. 5 is a standard brick having an end section of composition; and

Figs. 6 and 7 are perspectives showing modified forms of building blocks having a brick facing and a composition backing.

In each of the instances shown, the brick facing is indicated by the letter B, and the composition backing by the letter C. In Fig. 1, the brick facing is afforded by a brick split longitudinally and augmented by a backing of proper dimensions to provide a brick of standard dimensions.

Fig. 3 shows a similar arrangement, in which the composition backing is extended to afford an L-shaped lug brick adapted, when bonded into a wall, to harmonize with the brickwork and at the same time afford a rearwardly extending lug or projection for nailing or supporting purposes, or for use in bonding the brick wall to a partition wall or inner brick wall, or other form of brick construction.

Fig. 2 shows a facing brick with one of its

corners split away to afford an oblique surface for the adherence of the plastic constituent.

Fig. 4 shows a T-shaped brick in which the rearwardly extending lug only is composed of a plastic composition, the remainder of the unit being in the form of a full sized brick, although a similar result might be obtained by employing only a brick slab, as in Fig. 3, instead of a full sized brick, as the facing unit.

Fig. 5 shows a brick-shaped building unit, in which the end only is of brick with a backing of plastic composition. Building units of this character are adapted to be used as headers in a wall, and particularly where such a header is employed to afford an inwardly extending lug or projection to afford a nailing surface.

Fig. 6 shows a building unit having a facing slab composed of a fraction of a brick which is backed by a composition backing, to afford a building unit of larger size than a standard brick. In this instance, the side edges of the building unit are deeply recessed at R to afford a neck N of sufficiently reduced width to permit a mason to grasp the brick with the fingers and thumb of a single hand around the neck, which facilitates the manipulation of building units of this character.

Fig. 7 shows a similar building unit, having a central aperture or opening O adapted to afford an opening for the purpose of improving insulation, or for use under other conditions where a hollow wall structure is desirable.

As before stated, the material used as a backing for building units of the character above described, or otherwise configured, is composed in part of an aggregate known as "Haydite," and which is prepared for use and used in the following manner:

The basic raw material employed in making the aggregate is argillaceous or clayey in character, and is a material which will harden or form a clinker when subjected to high temperature during the burning step of the preparatory process. The presence of foreign materials which might preclude the use of such argillaceous or clayey material in the making of bricks is not detrimental to the formation of the aggregate in question. For instance, certain amounts of lime producing material or sand are advantageous rather than otherwise in the raw material to be employed.

The raw material includes such argillaceous materials as clay, shell, shale rock or the like, and it is preferred to break up the basic material so that it will pass through a screen having about a four-inch mesh. The raw material thus broken up is burned in a kiln at a high temperature and for a comparatively short time. The burning temperature should be in excess of 1500° F., the range of temperatures from 1700° to 2200° F. having been found suitable in the case of most raw argillaceous materials. The high temperature is maintained for a period of about two hours. During this operation, the material, or the argillaceous constituent thereof, is converted into hard particles and clinkers, and assumes such a state that it will withstand the action of the elements without disintegration, and at the same time it is wholly resistant to crushing strains, so that, when used as an aggregate, it will be strong and durable and at the same time lighter than materials ordinarily employed for a like purpose.

The resulting burned material consists of indurated clay, inert material not changed by the high temperature to which the raw material is subjected, and lime to the extent that lime producing material is or may be present in the raw material employed. After burning, the raw material is deposited in piles and permitted to cool slowly from a period of from six to twelve hours before being crushed, as will hereinafter appear. The breaking up or spontaneous disintegration of the material is prevented as much as possible during the cooling thereof.

After the material is cooled sufficiently to permit the application of water thereto without disintegration, and preferably before crushing, water is added in order to slake the lime which may be present, but the quantity of water used will be as small as possible in order not to interfere with the crushing operation which follows. If no line forming ingredients were present in the raw material no water need be added.

The burnt, cooled, and water-treated material is next crushed, preferably in a dry state, by means of any suitable crushing mill or device, but without attempting to reduce all of the material to a uniform degree of fineness. In fact, it is desirable that the resultant material present a varying range of fineness, from coarse particles to impalpable dust. During this crushing operation, the slaked lime or lime putty becomes thoroughly mixed with the particles of crushed material.

In order to produce a plastic mass suitable for molding, the aggregate is next mixed with Portland or other cement, or lime and water, and the plastic mass thus produced is in condition to unite with a brick slab or fraction of a brick, in order to produce the composite brick of the present invention. The plastic composition may be made by the puddling process, which involves production of a thin and flowing mixture and the pouring or tamping of the same into suitable molds in which the brick slab or facing section of the intended composite brick is laid, so that the plastic backing will firmly adhere thereto and become integrally bonded therewith during the setting of the composition. The same result may be obtained by forming a thicker

mixture of the materials, and molding the same into adherent relation to a brick or brick section by pressure or in any other manner commonly employed in molding operations.

After molding, the composite bricks are allowed to harden and bind the comminuted basic materials into a compact mass, during which it is desirable to wet the bricks from time to time in order to secure a better setting and hardening action of the cement or lime. This finishing operation or step should be continued for from six to twelve days, at the end of which time the composite brick or other building units are ready for use.

In view of the fact that the basic material employed in the composition is burnt in order to render it suitable for use, and to convert it into such form that it will not be acted upon by the elements, it follows that, after the material is bonded or integrally united with a brick section, there will be no shrinkage, cracking or distortion, and in view of the fact that the aggregate employed in the plastic composition is formed of burnt clay or similar argillaceous material of the general character employed in making the brick sections of the composite brick, it is evident that the resulting composite brick will be composed largely of materials of homogeneous character throughout, so that the composite brick will be more resistant to disintegrating influences than if composed of materials having widely different physical properties.

The use of the composition backing heretofore described is of peculiar advantage in the formation of a building unit, in view of the fact that the composite bricks may be introduced into any desired portion of the wall without interfering with the rhythm or continuity of the brick facing, and at the same time, by molding the inner constituent of the composite brick from plastic material, any suitable or desirable configuration can be given to this portion of the composite unit to fit it for special requirements of divers character.

I claim:

1. A composite building unit comprising a burned brick facing section of argillaceous material and a concrete backing section consisting of an aggregate of prepared burned argillaceous particles and a cementitious binder, said binder in said backing serving also to unite the two sections.

2. A composite building unit comprising a burned brick facing section of argillaceous material and a concrete backing section comprising prepared burned argillaceous material in the form of clinkers of varying size, and a cementatious binder, said binder in said backing serving also to unite the two sections.

3. A composite building unit comprising a burned brick facing section of argillaceous material and a concrete backing section comprised of aggregate of variously sized particles of prepared burned argillaceous material in the form of clinkers and slaked lime with a binder of Portland cement, said binder in conjunction with the lime serving also to unite the two sections.

In witness that I claim the foregoing I have hereunto subscribed my name this 11th day of December, 1928.

EDWIN M. WYATT.