Feb. 7, 1939. C. E. NAYLOR 2,146,549

BUILDING BLOCK

Filed Jan. 9, 1936

Fig. 1.

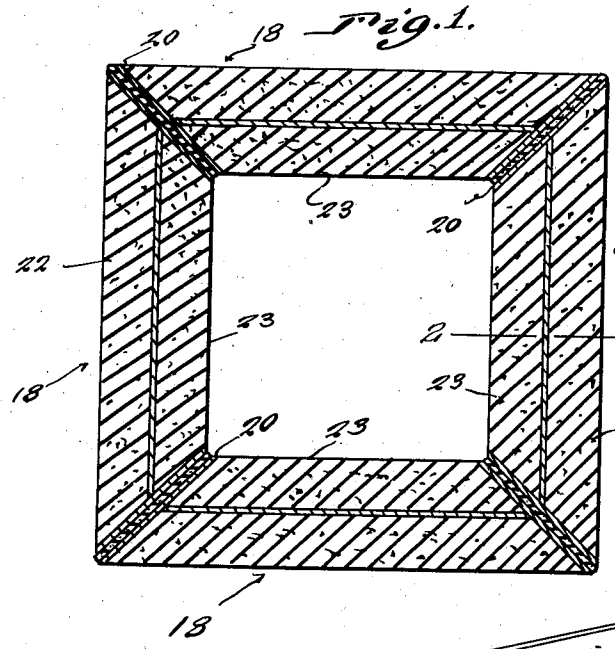



Fig. 2.

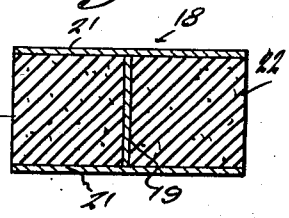
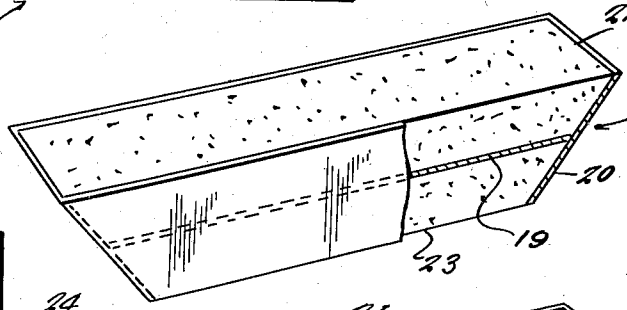



Fig. 3.



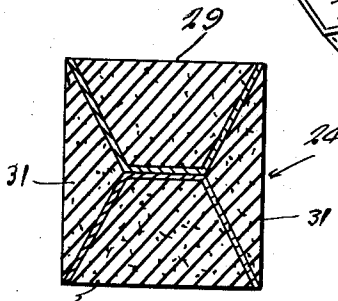




Fig. 5.

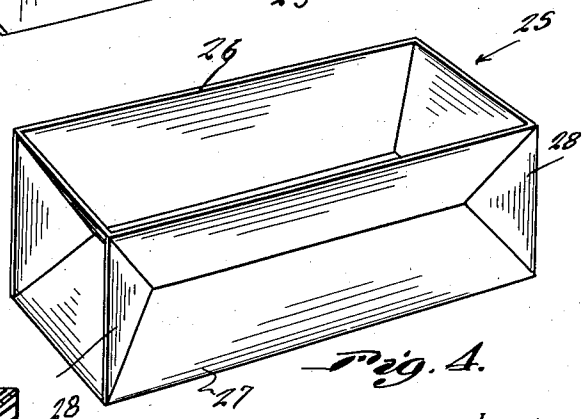



Fig. 4.

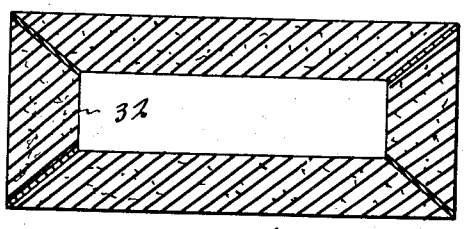



Fig. 6.

Inventor

C. E. Naylor

By Clarence A. O'Brien and Hyman Berman Attorneys

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# UNITED STATES PATENT OFFICE

2,146,549

## BUILDING BLOCK

Cash E. Naylor, Grand Rapids, Mich.

Application January 9, 1936, Serial No. 58,403

5 Claims. (Cl. 72—35)

Although the inventive conception herein involved is of an unusually diversified and far-reaching character so far as utility is concerned, it may be briefly and aptly introduced as a building and construction block in the sense that it is adaptable for practical usage in innumerable lines of endeavor.

In reducing the inventive conception to actual practice I have discovered principally an unusual affinity between a bituminous product and sheet metal, with the result that the product evolved is in the nature of a unique metal protected asphalt block.

The principal object of my invention is to provide a building block which is composed of an asphalt composition combined with metal to act as reinforcement.

Another object is to provide a metallic pan shaped container into which an asphalt composition may be placed, the combination of the two resulting in the type of block desired.

A still further object of the invention is to provide a plurality of metallic containers which may be filled with asphalt and adapted to be placed together to form structures of various shapes and designs.

It goes without saying that I am aware that the art to which the discovery pertains is characterized by innumerable and inconceivable types of blocks, bricks and slabs of a composite nature. Concrete and similar cementitious products have been combined with metal. Many other plastic compounds have likewise been reinforced and combined with metal.

It has long been recognized, however, that since time immemorial, asphalt is the one product which is susceptible of providing the factor of longevity so long needed in the trade and industry. Also, it is evident that asphalt in itself is not sufficiently self sustaining, vigorous, or otherwise stable to permit it to be molded into a definite self sustaining shape. Having discovered the need for the provision of asphalt in certain septic tanks, acid tanks and in vault construction, I set out to perfect an asphalt brick or block which would fulfill the trade requirements. It follows, therefore, that the structure finally selected to accomplish the desired effect, constituting the subject matter of this application, embodies a sheet metal pan or shell and a filler of asphalt, the asphalt being molded into the shell and the shell becoming a permanent part of the final product to provide what I literally refer to as new material or unitary product.

Numerous other features of surpassing merit and exclusive character will become more readily apparent from the following description and drawing.

In the drawing:—

Figure 1 is a horizontal sectional view through what might be conveniently referred to as an asphalt interior and exterior acid tank construction utilizing double faced or duplex blocks.

Figure 2 is a cross-sectional view taken on the plane of the line 2—2 of Figure 1.

Figure 3 shows a perspective of the dual type or double faced block used in Figure 1.

Figure 4 is a perspective view of what I term an "all-over" asphalt faced block, this particular view showing merely the skeleton shell from which the finished block is finally made up, the finished block being six-sided as is obvious.

Figure 5 is a transverse or cross-sectional view through the finished six-sided block utilizing the metal shell or core illustrated in Figure 4.

Figure 6 is a central horizontal sectional view through the construction depicted in Figure 5.

By way of introduction to the detailed description it is to be pointed out that certain common characteristics or generic novelties exist in the various modifications of the invention depicted in the drawing. That is to say, in all of the various figures we find a composite block constructed essentially of a mass or filler of asphalt and a protective metal pan or shell integrated therewith. By way of generic consideration of the distinguishable embodiments it will be discerned that the principal change is that of shape and proportion. In all styles we have two or more sides or surfaces of exposed asphalt. In all instances, however, the asphalt is virtually protected around its marginal portions by a rigid metallic shell.

The asphalt may be a natural mineral pitch especially compounded to serve the intended purposes. So far as the construction of the compound itself is concerned, this is not a matter of moment in the discovery. That is to say, although I find it expedient and practicable to use asphalt of a definite mixture, with or without artificial reinforcements, it is believed that the novelty is predicated primarily on the combination of the metal and asphalt. In reducing the inventive idea to practice, I discovered that asphalt does not adhere tenaciously to most materials. I found that by heating asphalt to an easily poured liquid state, it could be poured into a metal pan and the metal would at once become heated. The heat taken up by the metal would dry up condensation and moisture which would otherwise prevent the two materials from fusing together into a requisite unit. The agglutinant properties of the asphalt itself, and the ability of the heat present to temporarily dry out the moisture was the primary thing discovered, it is believed, it being a well known fact that it is difficult to satisfactorily apply asphalt to wood, glass, and other substances.

By pouring the hot liquid asphalt into the metal pan, the entire pan is filled to give the

requisite thickness or height. The excess asphalt will flow over the rim of the pan and can be scraped off at a time most suitable for such removal. After the asphalt is hardened and set, it is firmly and positively united to the metal so that the metal, in a sense, forms a mold to shape the asphalt and thereafter becomes a protective shell enabling asphalt to be utilized as a building block or brick.

Attention now comes in particular to Figure 3 wherein the numeral 18 designates a duplex style or type building block. As a unit this might well be described as possessing a shape likened to a trapezium. The main distinction here, however, is that the metal shell comprises a central partition 19 cooperating with the tapered end walls 20 and side walls 21 in forming inner and outer box-like receptacles into which separate asphalt bodies 22 and 23 are molded. Hence in this arrangement we have a two-sided asphalt block, that is, asphalt on the inside and asphalt on the outside. This type of a block lends itself to use in the construction of an acid containing tank such as indicated for example in Figure 1. In other words, we have an outside wall exposing asphalt to the weather and elements and an inside asphalt wall which is substantially acid proof. The various metal surfaces of the block may be "welded" together, so to speak, by intervening asphalt seals.

Considering further the assemblage here shown, it is to be pointed out that a practical way of accomplishing desired results is to take four empty duplex pans and bring the corner portions thereof together in abutting relation. A thin asphalt seal may be placed between these abutting surfaces and then the ends bolted or otherwise permanently joined together. Thus we have an assembly made up of four empty pans and then the pans can be filled with asphalt to finish the job with requisite completeness. This permanent bolting or fastening of the two-part pans together is necessary in a rigid set-up and the pouring of the liquid asphalt can be accomplished expeditiously after the bolting step has been completed. Thus the finished object instead of being four blocks is in reality a substantially square frame including side and end members each made up of the double-faced asphalt block construction.

Attention now comes to the modification illustrated in Figures 4, 5, and 6. The principle of construction is the same as that already given in that we have a plurality of pans or receptacles filled with asphalt. The finished block illustrated in Figure 5 is denoted by the numeral 24 and the multiple-cell metal core is indicated by the numeral 25 in Figure 4. This unit 25 includes a pair of superimposed duplicate pans 26 and 27 having their bottoms permanently fastened together. The end and side walls of the pans are tapered and this arrangement defines marginal V-shaped gutters. At the ends of the so-called gutters are built in V-shaped webs 28 which arrangement defines six individual pockets or receptacles. The pans 26 and 27 are filled successively after which each of the side and end gutters are filled with asphalt. This provides individual fillings denoted by the numerals 29 and 30, side fillings 31 and end fillings 32. As a result the final product becomes a six-sided block or brick, that is one in which the metal core is virtually covered by asphalt. Inasmuch as the block, when finished, is susceptible of being used in divers ways, it is deemed unnecessary to go into detail concerning this question of usage.

It is further a matter of consideration to mention that asphalt is desirable in a construction of this kind in that it is substantially acid and weatherproof. It will last for a lifetime, is sufficiently elastic to possess requisite durability and strength when combined with metal, and possesses a coefficient of expansion and contraction which permits it to compensate for relative expansion and contraction of the metal jacket in which it is enclosed.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawing. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in shape, size, and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:—

1. As a new article of manufacture, a metallic member for use in the construction of a multiple faced composite block including a pair of oppositely opening longitudinally elongated pans, and transverse end pans, all of said pans being adapted to receive fillers in the manner and for the purposes described.

2. A skeleton shell adapted to form a metal reinforcing core in a six-sided asphalt building block comprising top and bottom receptacles, and side and end receptacles, all of said receptacles being individual to permit them to be separately filled with plastic material.

3. In a skeleton core for use in the construction of a six-sided composite block construction, a pair of duplicate pyramidal pans having their bottoms attached together in opposed relationship, said pans having inclined side and end walls, and a plurality of V-shaped webs attached to the corner portions of the pans to define substantially V-shaped receptacles surrounding the pans and adapted to be filled with asphalt.

4. As a new article of manufacture, a six-sided block comprising two metallic pans of similar pyramidal form having opposed bottoms joined together and each including inclined side and end walls, and V-shaped webs attached to the corner portions of the pans to cooperate with the side and end walls in defining marginal V-shaped receptacles, and fillers of asphalt in the receptacles afforded by said pans, the pans and fillers being united of themselves.

5. As a new article of manufacture, a six-sided block comprising two metallic pans of similar pyramidal form having opposed bottoms joined together and each including inclined side and end walls, and V-shaped webs attached to the corner portions of the pans to cooperate with the side and end walls in defining marginal V-shaped receptacles, fillers of asphalt in the receptacles afforded by said pans, the pans and fillers being united of themselves, by the cooling of the hot liquid asphalt after the same is disposed in the receptacle of the pans.

CASH E. NAYLOR.