Jan. 10, 1961 E. F. BAUMER 2,967,612

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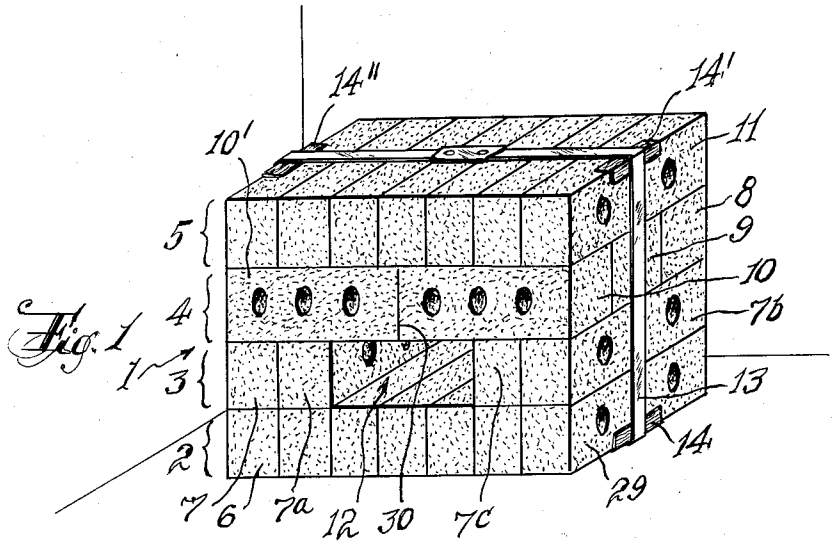


Fig. 1

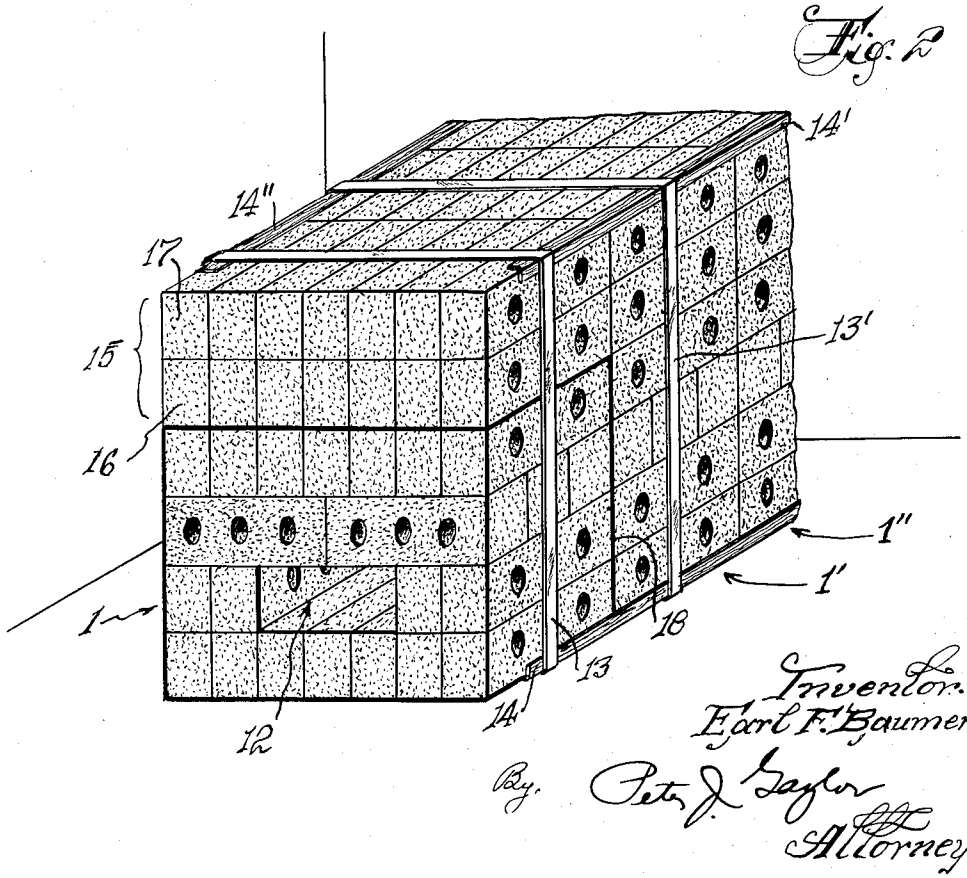


Fig. 2

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Fig. 3

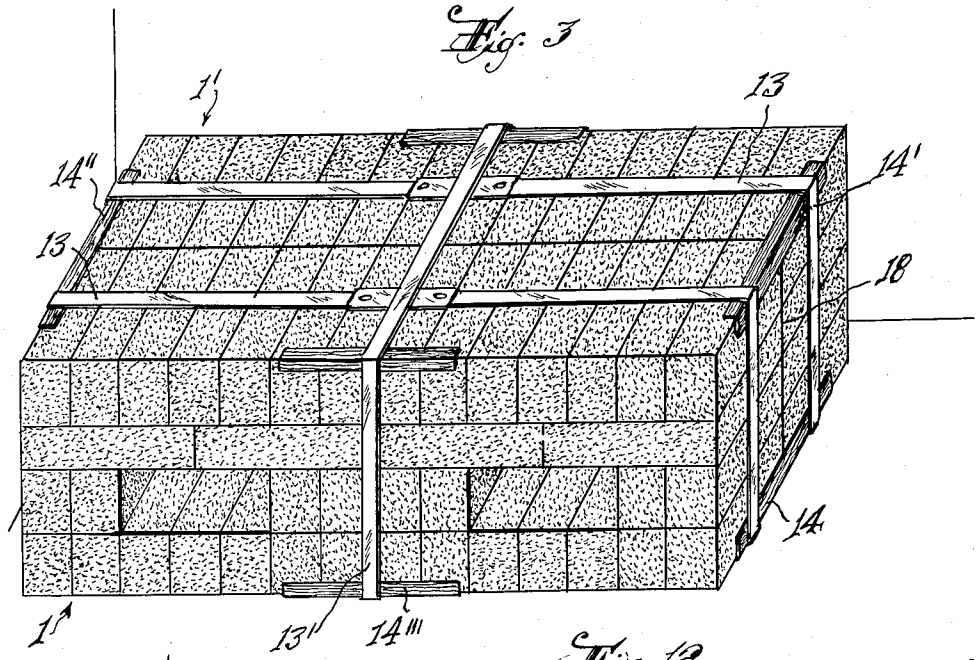
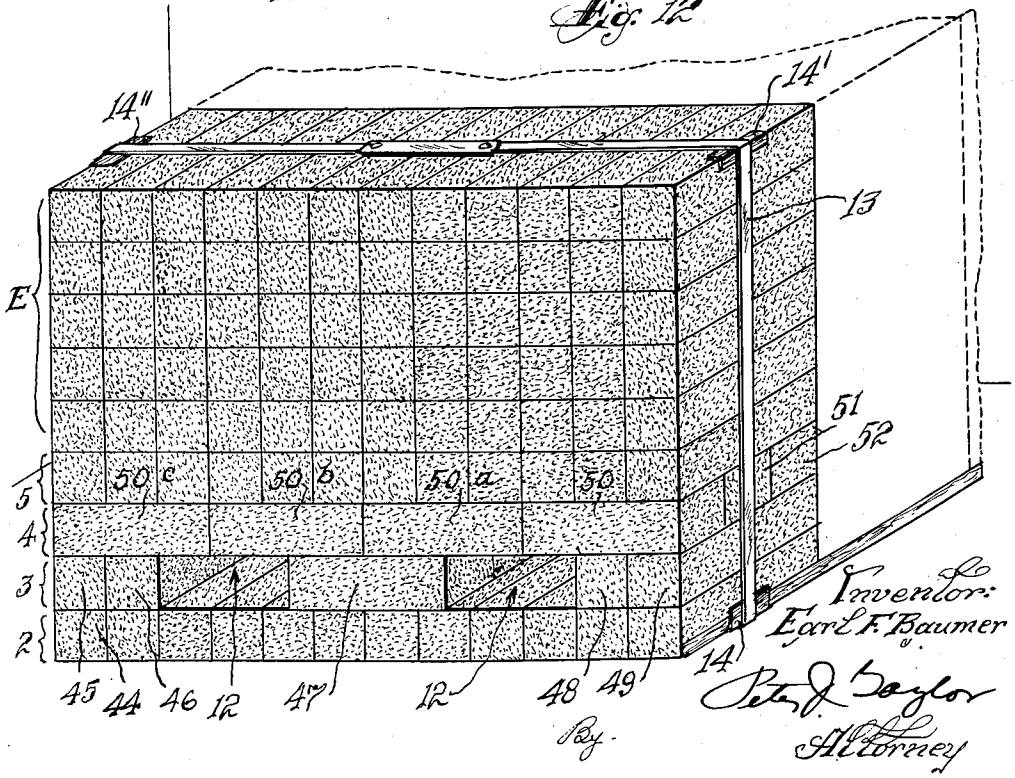


Fig. 12



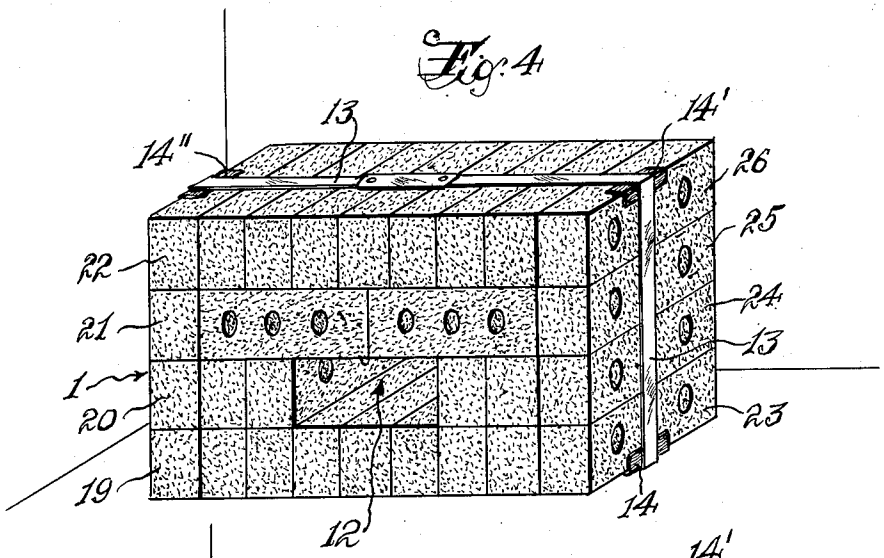
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Fig. 4



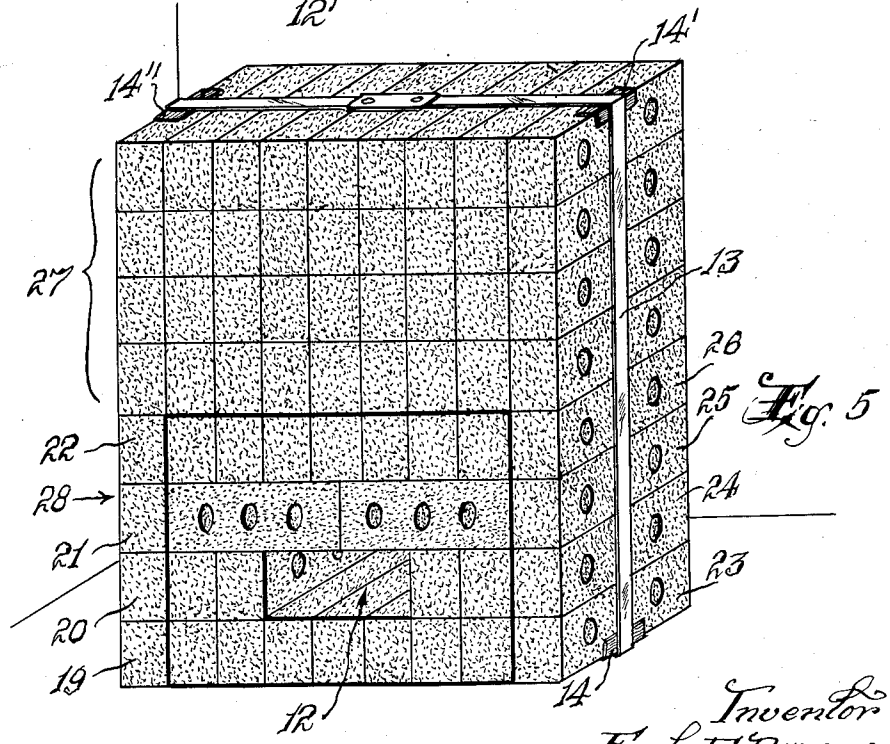


Fig. 5

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Fig. 6

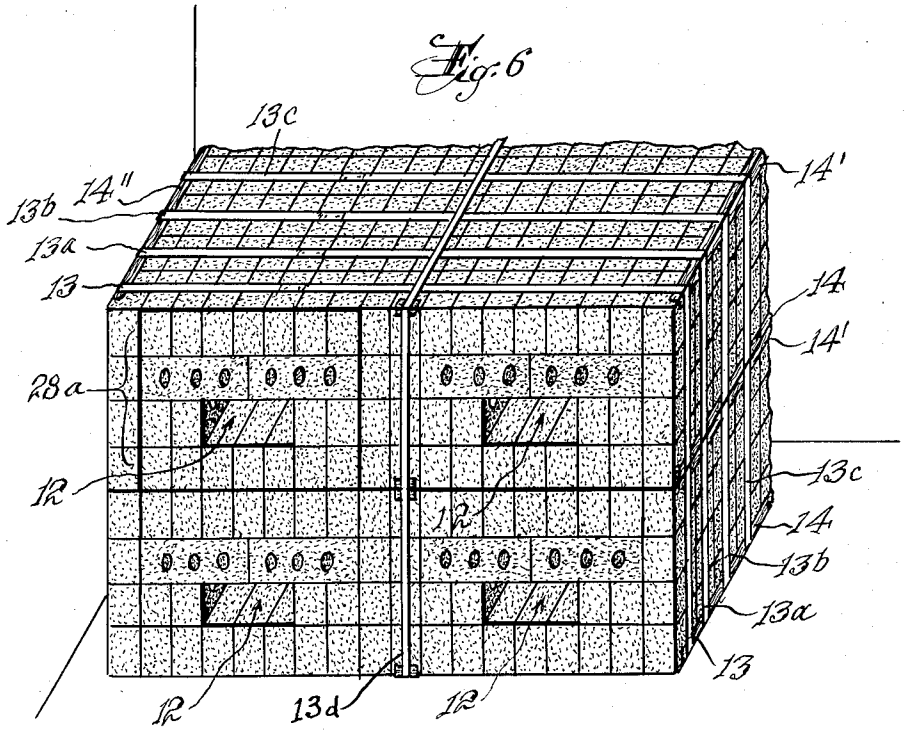
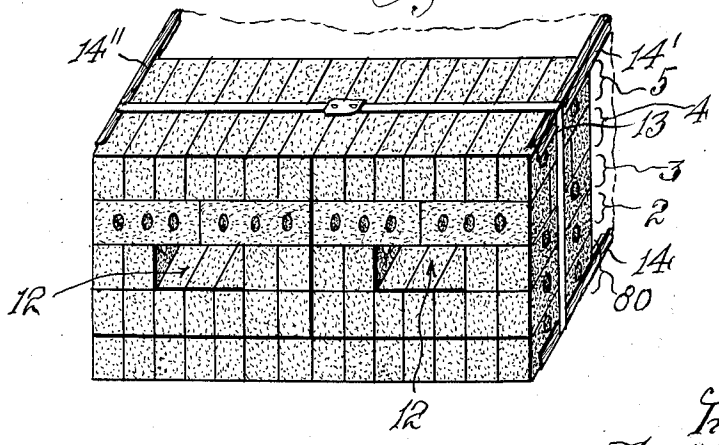


Fig. 7



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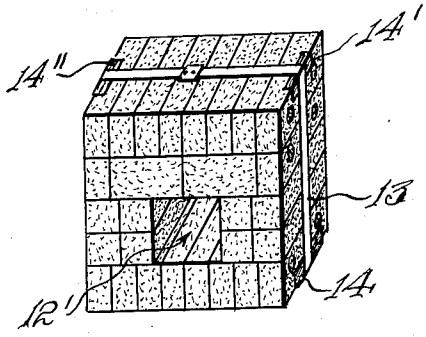


Fig. 8

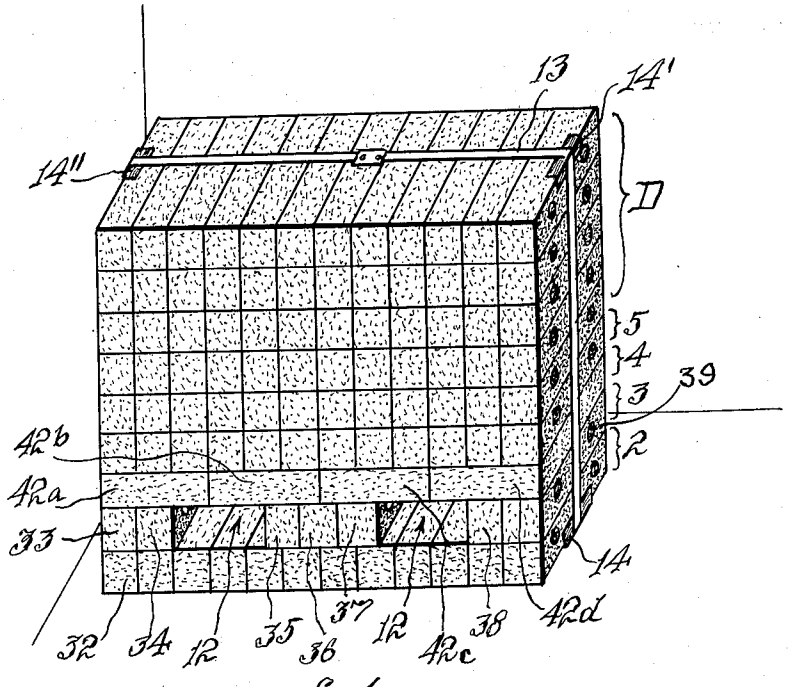


Fig. 9

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Fig. 10

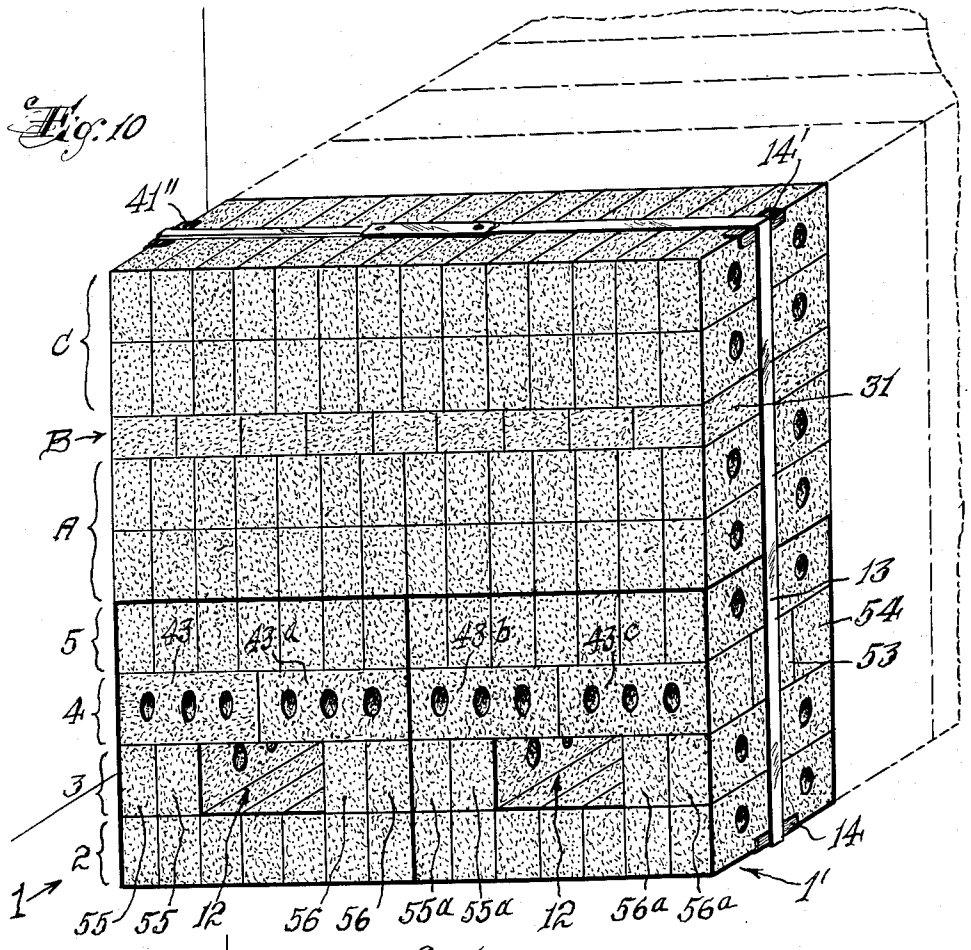
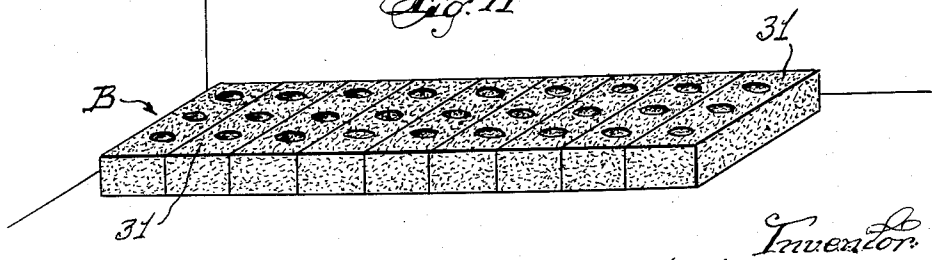


Fig. 11



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United States Patent Office 2,967,612
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2,967,612

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Filed July 17, 1959, Ser. No. 827,921
8 Claims. (Cl. 206—65)

This invention relates to a brick package which may be unitized into a single or double void assembly, and which requires no sheet, plate or metal lintel support over the voids. More specifically, it deals with a basic brick stack unit comprising a bottom section of brick disposed on their stretcher sides (edges) in running relation, a void section superimposed over said bottom row and composed of a single substantially centrally-located void bounded by an equal height of brick, preferably an equal number thereof, on each side of said void, a third section comprising two rows, each row of an equal number of brick, set in the same plane on their sides, superimposed over the void section at right angles thereto with the header ends of one row abutting those of the other at a point about midway over said void, and a top section identical with the bottom row and superimposed over the third section, the entire brick stack being all or part of a larger stack held together by a band or wire circumscribing at least the closed periphery of said latter stack. Additional tiers of brick placed on their stretcher sides in running relation may be superimposed over or placed under the unit stack prior to banding, if desired. Also, a limited number of tiers of brick placed on their stretcher side may be disposed in running relation, in equal number, on each side of said unit brick prior to banding. In the case of large stacks, a binder course of brick may be inserted, as will be hereinafter outlined.

Many attempts have been made to produce a marketable banded or wired stack of brick which could be handled efficiently and conveniently with conveyances generally available. For example, brick has been stacked and banded to wooden pallets for shipment and storage. Recent improvements have been in the direction of avoiding the bulky and expensive pallets and the forming of two openings near the bottom of the unit stack with tiers of brick stacked above the openings. Metal, wood, plastic and paperboard lintels have been used over such openings to prevent the brick from collapsing thereinto. Unfortunately, such two-void unit stacks, besides being clumsy, weighty and unwieldy, are not adaptable to being handled by conventional fork lift trucks, and they generally require special hand-operated conveyances or undersized mechanized lifts. Besides, the voids in such packages necessarily are limited to dimensions too small to accommodate conventional forks.

In Patent No. 2,869,721 issued to Earl F. Baumer, there has been described a single void brick package having many advantages over prior art units and providing a stack transportable readily in the plant or on-the-job by available conveyances. However, such a unit requires the use of a cardboard, plywood or similar sheet over the void prior to banding of the stack.

The present invention provides a single-void brick unit which may be banded alone or in multiples thereof, and which requires no lintel or sheet material for holding the row or tier of brick over the void prior to banding. Furthermore, it is in condition to be loaded or unloaded by conventional mechanized lifting equipment or manual

means at the building site or location. In addition, it is likewise adaptable to be extended vertically to any desired height, or laterally to any width, depending upon the payload and handling requirements. When such a unit, of itself, is to be extended laterally, it is desirable to extend it substantially to the same degree on each side of the void so as to maintain balance of the unit.

The invention will be more readily understood by reference to the accompanying drawings in which a preferred embodiment of the invention is depicted. Figure 1 shows an isometric front view of a basic unit, in banded form, composed of 24 regular size brick, while Figure 2 illustrates a similar view of a unit such as that in Figure 1, extended vertically upward to a banded stack of 38 brick, and in multi-stack formation in depth. Figure 3 depicts another similar view wherein two of the basic units are banded together laterally, and stacked in depth, with a band at right angles to the closed periphery. Figure 4 is a similar view of a basic unit banded with an additional row of brick on each side, the entire stack being composed of 32 regular brick, while Figure 5 is a similar view of the unit of Figure 4 extended vertically upward prior to banding. Figure 6 represents a similar view of four units of the type shown in Figure 4 extended vertically upward prior to banding. Figure 6 represents a similar view of four units of the type shown in Figure 4, banded in four unit stacks (two above two) and also stacked in depth. Figure 7 presents a similar view of a banded stack of regular size brick wherein the double basic unit has been extended downwardly to a stack of 62 brick, while Figure 8 depicts a similar view of another embodiment of a laterally extended basic unit of jumbo size brick banded into a stack of 32 brick. Figure 9 likewise illustrates a similar view of jumbo size brick in a lateral double unit banded arrangement of 99 brick. Figure 10 illustrates a similar view of a laterally-joined double unit of regular brick extended vertically upward (and extendable in depth) and including a binding course of brick, such as that shown in Figure 11, inserted between upper layers, while Figure 12 presents a similar view of a laterally-joined double unit package of cube jumbo size brick extended upward vertically prior to banding. Similar numerals refer to similar parts in the various views.

Referring again to the drawings, numeral **1** represents generally a unit stack of brick assembled according to the present invention, in banded form and in condition for being transported. It will be noted that the unit is composed of four superimposed sections, the first or bottom section (**2**) consisting of a running row of brick (**29**) laid on their stretcher sides. In the case of regular brick (8" x 2¼" x 3½"), this basic row consists of seven brick (**6, 29**). The second section (**3**) superimposed over first section (**2**) consists of a centrally-disposed void (**12**) bounded on each side by brick laid on their sides in running relation. In the case of regular brick, the second section (**3**) consists of two brick (**7,7***a* or **7***b*, **7***c*) laid on their stretcher sides in running relation on each side of the void. The third section (**4**) consists of a single layer of brick disposed in two abutting rows of three brick (**8, 9** and **10**) each, laid on their stretcher sides in a direction at right angles to that of the brick in the other sections. These two rows (**4**), disposed in the same plane, abut each other at their header ends at a point (**30**) about midway over void **12**.

The term "side" shall be employed herein to designate either the stretcher side or edge (e.g., the 2¼" side in the regular size), or the flat side (e.g., the 3½" side in the regular size). The brick are disposed in flush relation with the outer closed periphery of the unit. The fourth section (**5**) of seven brick (**11**) is identical with the first section (**2**). The entire stack of four sections is banded into a package by metal band **13** circumscribing the

closed periphery of the stack package. Cardboard or wooden protecting pieces 14, 14', 14'', etc., may be placed beneath the band at the corners prior to secure fastening of the band to protect the brick from chipping.

As shown in Figure 2, which outlines the basic unit (1) in heavy lines, the basic unit may be extended a distance (15) upwardly by adding another row of brick (16) and a further row of brick (17) prior to handling. A similar stack 1' bound with band 13', and a third stack 1'', etc., may be disposed in depth to form a unitary package which may be lifted by inserting a fork tine through void 12 and into each of the units of the package.

From Figure 3, it is apparent that two units of the type of that shown in Figure 1 may be placed side-by-side, and then bound together by a single band 14. Another similar double unit bound by band 14' may be disposed in depth behind the first double unit, space 18 designating the vertical line of demarcation between the two double units. Then, in this case, it is desirable to bind the packages with band 13' at right angles to the bands 14 and 14' which circumscribe the outer peripheries of the double-unit packages. Band 13' may encompass only the first double-unit package, if desired, in which case the second package would require another similar band. Also, in the case wire is employed instead of a band, it is preferable to place wire 13' to the right or left of the centerline between both single-void units so that said wire would not slip into this center line opening. The term "band" employed herein includes wire and similar material as the fastening means.

From Figure 4, it is apparent that the basic unit (outlined by the dark lines) may be bordered on each side by a vertical row of brick, 19, 20, 21, 22 and 23, 24, 25 and 26, disposed on their stretcher sides in running relation, prior to banding.

In Figure 5, it is shown that the laterally-expanded unit of Figure 4 may be extended vertically by four rows (27) of brick in running relation and on their stretcher sides, prior to banding.

Figure 6 shows banded double stacks (of those of Fig. 4) superimposed on similar double stacks with banding 13*a*, 13*b*, 13*c*, the quadruple units being stacked in depth and fastened by band 13*d*. It will be noted in this case, as well as in the case of the stacks of Figure 3, that a two-tine fork may be employed to transport the stacks and that such stacking is designed primarily for such transportation.

The stack of regular brick of Figure 7 depicts a first section (2) of fourteen brick disposed on their stretcher sides in running relation. The void 12 in the second section (3) of each unit is bordered on each side by two brick also laid on their stretcher sides in running relation, while the third section (4) has two rows of three brick each abutting each other, laid on their stretcher sides at right angles to the brick in the lower sections. The top section (5) is identical with the first section (2). The stack is extended vertically downwardly by a section (80) identical with the first section (2), all of the sections being banded with band (13).

In the case where larger voids are desired to accommodate large forks tines, jumbo size brick may be arranged as shown in Figure 8 wherein the void section now is bordered by two vertical tiers of two brick on each side of void 12' disposed in running relation, the void section brick being laid on their flat sides, whereas the other brick may be disposed on their stretcher sides.

In Figure 9, the first section (2), of jumbo size brick (e.g., 8'' x 2¾'' x 3½'') for the double unit package consists of twelve brick (32) laid on their stretcher sides in running relation. The void section (3) has two brick 33 and 34 on one side of the first void, and two brick 38 and 39 on the other side of the second void. Between the two voids, there are three brick, 35, 36 and 37, all being disposed in running relation on their stretcher sides. The third section (4) protecting the voids consists of two rows of four brick each laid on their flat sides alongside each other in a direction at right angles to that of the other brick, thereby providing a substantially flush periphery for the package. The fourth section (5) is identical with the first section, as are the other tiers (D) superimposed thereover, the entire package being held together by band 13.

Figure 10 depicts a double-unit stack of regular size brick expanded vertically. The two units (1) and (1') outlined in dark lines, are identical with the unit (1) of Figure 1. The first section (2) consists of brick laid on their stretcher sides in running relation. The second section (3) has two brick (55) on one side of the first void (12), and two brick (56) on the other side, while the second void likewise has two brick (55*a*) on one side and two (56*a*) on the other side, laid on their stretcher sides in running relation. Comprising the void-protecting section (4), are abutting rows (43) and (43*a*) of three brick each, disposed over the first void, and similarly abutting rows (43*b*) and (43*c*) are disposed over the second void laid at right angles to the direction of the brick in the lower sections. The fourth section (5) of each unit is identical with the first. Above the fourth section are two more identical tiers (A). In view of the height of the stack, it has been found desirable in such case to insert a binder course of brick (B) to prevent a shearing collapse of the stack. This binder course, as shown in Figure 11, consists of a row of nine brick laid in running relation on their flat sides, thereby breaking up any vertical shear lines which may tend to form during transportation, pickup, and deposition of the stack. This stack presents a substantially flush outer closed periphery. Additional tiers (C) of brick may be superimposed over the binder course (B) prior to banding. As indicated in the drawing, this stack also is expandable in depth.

Another type of package, according to Figure 12, designed especially for cube jumbo brick (e.g., size 9'' x 3'' x 3''), comprises a two-void assembly wherein the first section (2) consists of twelve brick laid on their sides in running relation. The second section (3) consists of two brick similarly laid on one side of the first void (12), and two similarly laid on the other side of the second void. Between the two voids is one row of three brick centrally disposed on their sides with respect to the first tier and at right angles to the brick thereof, whereby a flush periphery is presented. The third section (4) consists of three rows of four brick each (e.g., 50, 50*a*, 50*b*, 50*c* for the first row, the second row starting with brick (51), and the third row with brick (52), all of the brick in said third section being in the same plane but at right angles to the brick in the first section), whereby a substantially flush periphery on the open and closed sides of the stack is presented. The fourth section (5) is identical with the first, as are the other tiers (E) superimposed thereover. The entire stack is held together by band 13. Such a stack is readily handled by a two-tine fork.

In the case of the regular size brick, it is preferable that the second section of the unit consist of two brick on their stretcher sides on each side of the void as in Figures 1, 2, 3, 5, 6, and 10, and the brick in the third section consist of two abutting rows of three brick each on their flat sides with the abutment disposed substantially over the center of the void.

Since it is essential that the widths of the void be at least 6½'' to accommodate adequately-powered fork lift truck tines, the brick in the second and third sections may be realigned, particularly in the case of jumbo brick, to provide adequate space for the tines to be employed, care being taken to insure that the center of gravity of the entire package is not shifted from the middle thereof. The other determining factor is the flush or substantially flush periphery which must be provided to insure proper banding of the package. It is desirable that the brick

in the third tier be within a tolerance of ½" of flush peripheral surface.

It will be noted that the brick in the third section (4) which span the void, e.g. brick 43 and 43*a*, or 43*b* and 43*c*, of Figure 1, are disposed in a manner so that the center of gravity of each spanning brick is situated over the void-bounding brick in the second section, e.g., over brick 55 or 56, and not over the void.

With respect to the brick in the second section, it will be noted that the brick adjacent the closed periphery are laid in running relation. Those in the third section must abut over the void, although additional brick may be added on each side, as in Figure 7 to produce a flush or substantially flush closed periphery for the stack.

It is to be understood that the term "brick" employed herein, shall include tile, stone, blocks, and other building material of comparable size. Also, it is within the scope of the present invention to reduce the number of brick in the top row above the basic unit to any number, prior to banding, so as to give the stack a predetermined number of brick, such as 100, 200, 500, and the like.

This application is a continuation-in-part of copending application Serial No. 773,972, filed on November 14, 1958, by Earl F. Baumer, now abandoned.

I claim:

1. A transportable brick package comprising a vertical stack unit of superimposed sections consisting of a bottom section containing a row of brick laid on their stretcher sides in running relation, a second section defining a centrally-located void having a width sufficient for access thereinto of a fork lift truck tine and consisting of an equal height of brick disposed on their sides and each side of and bounding said void, a third section comprising two adjacent rows of an equal number of brick, the header ends of one latter row abutting those of the other at a point substantially midway over said void, the brick in each latter row being disposed on their sides at right angles to and over the brick forming the respective boundary of said void in a manner so that the center of gravity of each abutting brick row is over the respective void-bounding brick, a top section identical with the bottom section, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

2. A transportable brick package according to claim 1 in which at least one brick laid on its stretcher side is added to each section on each side thereof.

3. A transportable brick package comprising a vertical stack of super-imposed sections consisting of a bottom section containing a row of seven brick laid on their stretcher sides in running relation, a second section defining a centrally-located void having a width sufficient for access thereinto of a fork lift truck tine and consisting of two brick disposed in running relation on their stretcher sides on each side of and bounding said void, a third section consisting of two adjacent rows of an equal number of brick, the header ends of one row abutting those of the other at a point substantially midway over said void, the brick in each row being disposed on their flat sides at right angles to the brick in the lower sections, a top section identical with the bottom section, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

4. A transportable brick package comprising a vertical stack of super-imposed sections consisting of a bottom section containing a row of brick laid on their stretcher sides in running relation, a second section defining an extra high centrally-located void having a width sufficient for access thereinto of a fork lift truck tine and consisting of at least one vertical row of two brick laid on their flat sides in running relation on each side of and bounding said void, a third section consisting of two adjacent rows of an equal number of brick, the header ends of one latter row abutting those of the other at a point substantially midway over said void, the brick in each latter row being disposed on their sides at right angles to and over the brick forming the respective boundary of said void in a manner so that the center of gravity of each abutting brick row is over the respective void-bounding brick, a top section identical with the bottom section, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

5. A transportable brick package comprising a vertical stack of superimposed sections consisting of a bottom section containing a row of twelve brick laid on their stretcher sides in running relation, a second section defining two voids formed by two adjacent brick laid on their sides in running relation at each end of said second section and three similarly adjacently laid brick disposed in the center of said second section, a third section consisting of three rows of four brick each running at right angles to the brick in the lower sections and disposed so that the juncture of the first and second brick in each latter row is situated substantially midway over the first void and the juncture of the third and fourth brick in each latter row is situated substantially midway over the second void, a fourth section identical with the first section, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

6. A transportable brick package comprising a vertical stack of superimposed sections consisting of a bottom section containing a row of twelve brick laid on their stretcher sides in running relation, a second section defining two voids formed by two adjacent brick laid on their sides in running relation at each end of said second section and a row, centrally disposed in said second section, of three brick laid side-by-side at right angles to said other brick, a third section consisting of three rows of four brick each running at right angles to the brick in the first section and disposed so that the juncture of the first and second brick in each latter row is situated substantially midway over the first void and the juncture of the third and fourth brick in each latter row is situated substantially midway over the second void, a fourth section identical with the first section, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

7. A transportable brick package comprising a vertical stack unit of superimposed sections consisting of a bottom section containing a row of brick laid on their stretcher sides in running relation, a second section defining a centrally-located void having a width sufficient for access thereinto of a fork lift truck tine and consisting of an equal height of brick disposed on their sides and on each side of and bounding said void, a third section comprising two adjacent rows of an equal number of brick, the header ends of one latter row abutting those of the other at a point substantially midway over said void, the brick in each latter row being disposed on their sides at right angles to and over the brick forming the respective boundary of said void in a manner so that the center of gravity of each abutting brick row is over the respective void-bounding brick, a fourth section, identical with the bottom section, at least one additional row of brick disposed over said fourth section and identical therewith, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

8. A transportable brick package comprising a vertical stack unit of superimposed sections consisting of a bottom

section containing a row of brick laid on their stretcher sides in running relation, a second section defining a centrally-located void having a width sufficient for access thereinto of a fork lift truck tine and consisting of an equal height of brick disposed on their sides and on each side of and bounding said void, a third section comprising two adjacent rows of an equal number of brick, the header ends of one latter row abutting those of the other at a point substantially midway over said void, the brick in each latter row being disposed on their sides at right angles to and over the brick forming the respective boundary of said void in a manner so that the center of gravity of each abutting brick row is over the respective void-bounding brick, a fourth section, identical with the bottom section, a multiplicity of additional rows of brick

disposed over said fourth section and identical therewith, at least one binding course tier of brick laid on their flat sides and inserted between two rows in said multiplicity of additional rows, and a band circumscribing the closed periphery of said package and serving to hold the brick together, the outer banded edges of all sections being disposed substantially in flush relation with each other.

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