

Feb. 13, 1968

H. W. ZENKE

3,368,286

BRICK LAYING APPARATUS

Filed April 28, 1966

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FIG. 1.

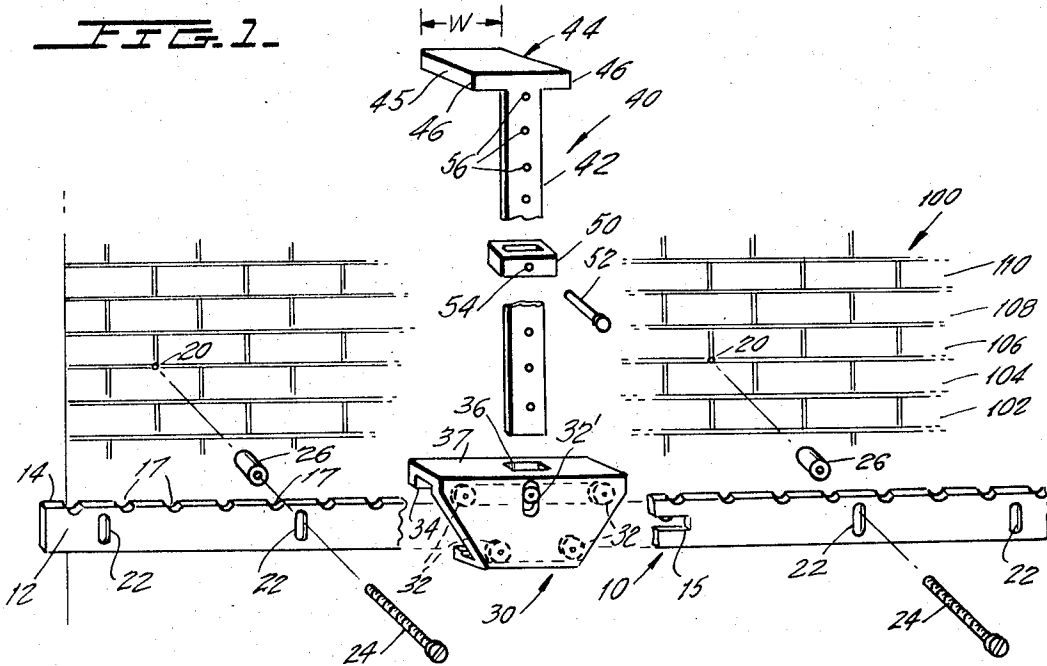


FIG. 2.

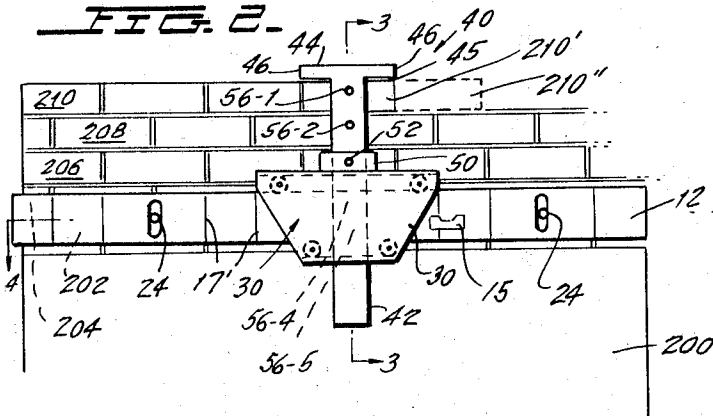


FIG. 3.

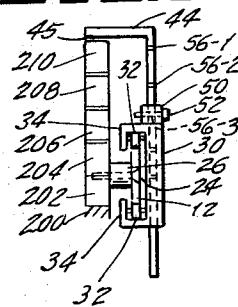
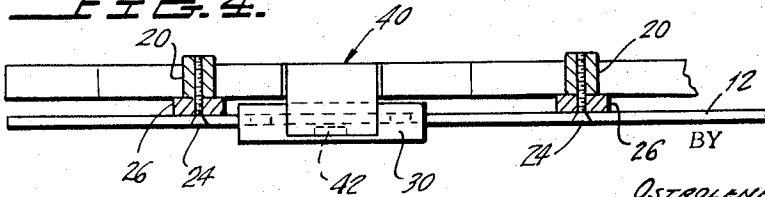


FIG. 4.



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FIG. 5.

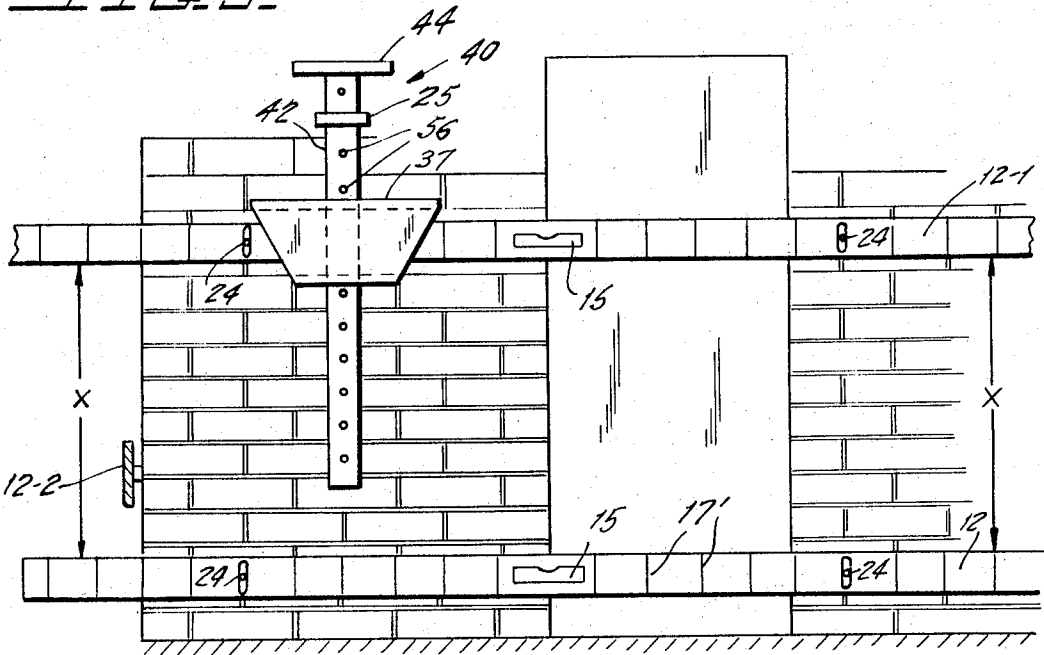
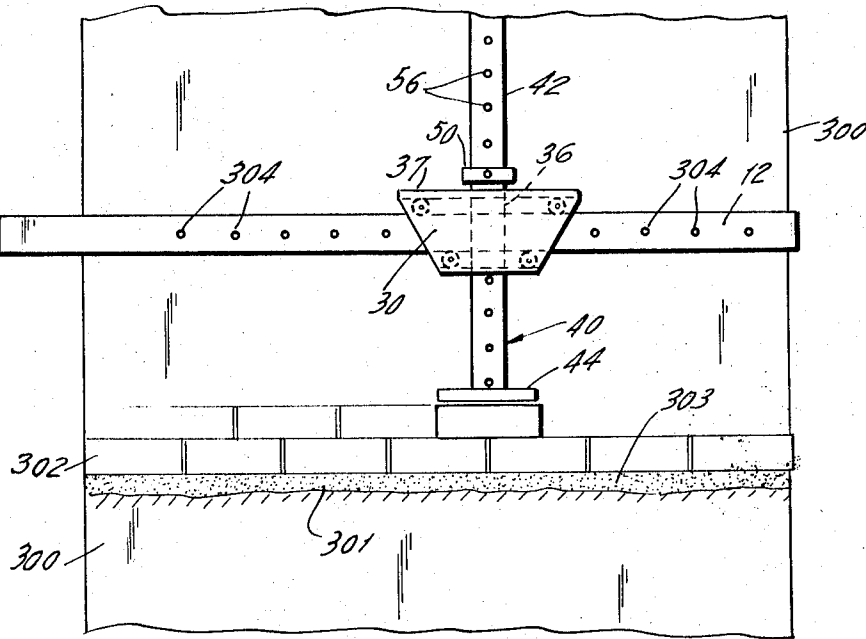


FIG. 6.



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FIG. 7.

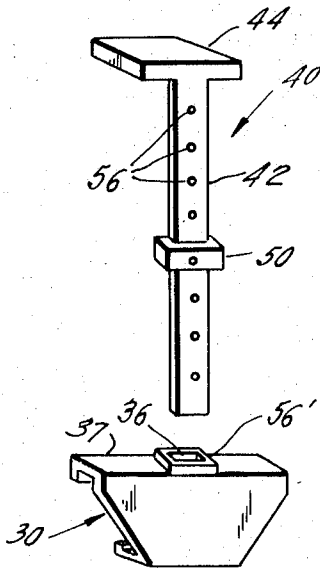


FIG. 7A.

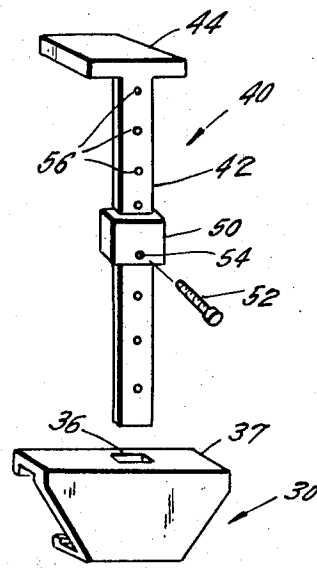


FIG. 9.

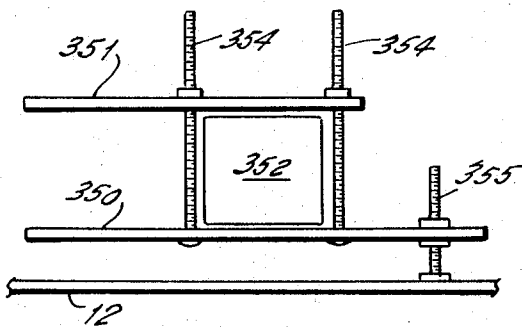


FIG. 8.

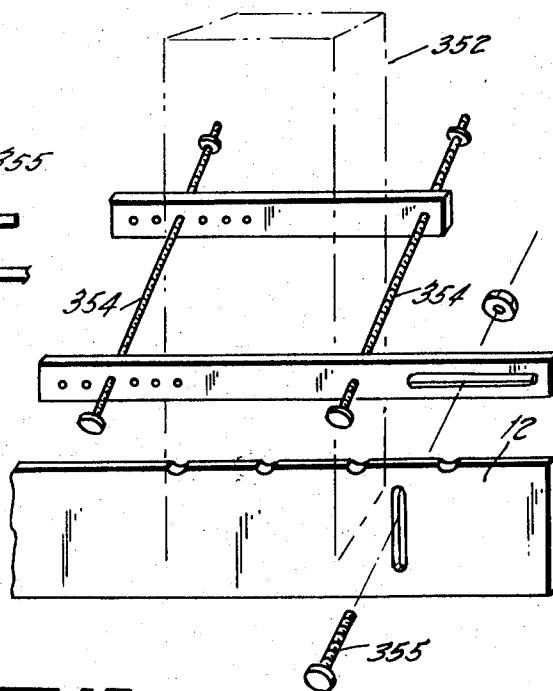
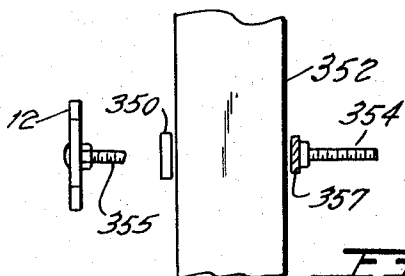


FIG. 10.

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BRICK LAYING APPARATUS

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8 Claims. (Cl. 33—180)

My invention relates to a novel apparatus for use by brick and stone masons to accurately position successive courses of brick work in the construction of a wall, and more particularly to such an apparatus which removes certain of the operations from the realm of a skilled, highly paid artisan and allows the same to be formed by an unskilled or semi-skilled laborer.

The laying of brick in accordance with conventional practices involves the steps of laying down a bed of mortar, successively placing the bricks in the mortar, and individually tapping the bricks into their final position so as to maintain adjacently disposed parallel courses. Where the bricks of each of the courses are of the same size, as is typically the case, these adjacent parallel courses are equally spaced. In order to maintain the proper spacing and parallel disposition of the adjacent course, it has been the general practice to position a taut string at each successive course of bricks, with the skilled artisan positioning the brick by using the guide string, in conjunction with a level and trowel. This requires the skill and judgement of a highly paid artisan, and is quite cumbersome and time-consuming in the successive placement of the guide string at each successive course of bricks and the multiplicity of tools which must be employed.

In the attempt to solve this problem, the prior art has demonstrated a considerable variety of levels, squares, gages and spacing instruments, as discussed in my co-pending U.S. patent application Ser. No. 496,796, entitled, "Mason's Guide" and filed Oct. 18, 1965, now Patent No. 3,327,395. That patent application solves the problem by the provision of a simplified templet-like device, which works in conjunction with reference marks on the building to accurately maintain alignment of the successive brick courses.

The instant invention is directed to another solution of the type which positions a reference guide member along the building and permits successive courses of the bricks to be accurately positioned by another member movable along the reference guide member. The prior art mechanisms of this general type have typically required the successive movement of the reference guide member to each of the individual vertical locations of the brick courses being positioned, with such successive movement being accomplished by cumbersome, complex and expensive arrangements of pulleys, gears, etc. Such prior art arrangements are, for example, typically shown in U.S. Patents Nos. 669,220, 704,648, 2,639,608, 3,111,764; and British Patent No. 214,773. My invention, however, constitutes a significant improvement over such prior art devices, in that it is an extremely simplified apparatus, demonstrating substantial versatility and permitting a plurality of successive courses of bricks to be accurately positioned while the reference guide member is maintained at a single fixed vertical location.

Essentially, the novel mason's guide of my invention constitutes a first guide member of a generally channel-type configuration, which is of an appreciable length, comparable to the horizontal extent of the course of brick being positioned. This guide member is removably secured at a predetermined fixed vertical location of the wall being formed by the successive courses of bricks. For example, the channel member may be bolted to

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threaded inserts located in the mortar of previous courses of bricks; bracketed to the upright beams of the building structure; or where a brick veneer wall is formed, the channel member may be mounted to the previously erected building frame structure. This channel member includes a straight guide surface, which will be disposed parallel to the required disposition of the bricks. A second guide member, of a horizontal extent comparable to the width of the brick, is mounted to the first guide member to freely move along its horizontal guide surface intermediate the horizontal extremes of the courses of brickwork to be positioned. A vertically reciprocable tool member is located within the second guide member, and includes a transverse platform at its free end for abuttingly urging the brick into position. A stop means is provided to limit the vertically reciprocable movement of the tool member towards the second guide member, to an extent corresponding to the desired location of the brick course being formed. The stop member may be adjusted to successively provide vertical movement of the tool member, corresponding to the location of successive courses of brick. Hence, each course of brick is positioned by locating the adjustable stop means to provide the desired vertically reciprocable movement of the tool member; successively moving the second guide member to the horizontally adjacent locations of the brick being positioned; and vertically reciprocating the tool member at each of these locations to set the individual brick into its desired position by the hammerlike blows imparted thereto by the tool platform portion. Upon the completion of a particular brick course, it is merely necessary to adjust the stop means of the tool, such that its vertically reciprocable movement will correspond to the desired spacing of the next adjacent brick course from the location of the first guide member, and the aforementioned steps are repeated. If desired, means may also be provided to adjust the vertical movement intermediate a full stop position. This is to be contrasted to the considerably more intricate and complex arrangements of the prior art, which required the successive movement of a member analogous to my first guide member for the positioning of each vertically adjacent course of brick.

In accordance with another advantageous aspect of my invention, horizontal guide means are located along the extent of the first member guide surface to stop the second guide member at the horizontally adjacent position corresponding to the desired brick locations. These guide members may typically take the form of indentations which receive a biased portion of the second guide member; or alternatively, reference indicia may be placed along the first guide member to be successively aligned as the second guide member horizontally travels therealong.

It is therefore seen that the inventive concept of my invention resides in the provision of an extremely simplified brick laying apparatus, permitting the positioning of successive courses of bricks from a single guide location, and wherein the adjustment for each successive course of brick may be accomplished by merely moving a simple stop means.

It is therefore a primary object of my invention to provide an improved apparatus for simplifying the laying of successive courses of brick.

Another object of my invention is to provide a brick laying apparatus, including a first guide member which is located at a predetermined vertical location during the positioning of vertically successive courses of brick.

An additional object of my invention is to provide such a brick laying apparatus which includes a second guide member horizontally translatable along the first guide member and having a vertically reciprocable tool member for abuttingly positioning successive bricks in their desired location.

Still another object of my invention is to provide an apparatus as set forth in the preceeding objects, which may be easily and readily applied to or removed from brick work constructions and may be readily adjusted to accommodate different sizes and proportions of brick work constructions and which is capable of maintaining a predetermined vertically spaced relationship between successive courses of brick work.

These as well as other objects of my invention will readily become apparent upon a detailed consideration of the following description and drawings in which:

FIG. 1 is an exploded perspective view showing the various parts of my mason's guide and the manner in which it may be secured to a brick wall under construction.

FIG. 2 is a front elevation view showing the manner in which the apparatus of my invention may be employed in the positioning of successive courses of brick work.

FIG. 3 is a side view along the line 3—3 of FIG. 2 and looking in the direction of the arrows.

FIG. 4 is a cross-sectional plan view along the line 4—4 of FIG. 2 and looking in the direction of the arrows.

FIG. 5 represents the manner in which the apparatus of my invention may be employed in positioning the bricks about the right-angle adjacent wall surfaces of a structure.

FIG. 6 shows the manner in which my invention may be used for positioning a brick veneer wall against a previously formed building frame structure.

FIGS. 7 and 7A show the manner in which adjustment may be provided intermediate a full stop position.

FIGS. 8, 9 and 10 are exploded, plane and side views respectively showing the manner in which the apparatus of my invention may be secured to the upright support beams of the building structure.

It should be initially noted that the use of the term "brick" in the instant discussion is for purposes of simplification only, with the broad aspects of the invention being equally applicable to the placement of other types of elemental masonry units, such as, for example, cinder block.

Referring initially to FIG. 1, the mason's guide of my invention includes a first guide member 12, in the form of a horizontal channel-like member which is secured to a predetermined fixed vertical location of wall surface 100. This securement may typically be provided by threaded insert members 20, located within the mortar spacing of previously formed brick courses, such as between 104 and 106. Clearance aperture means 22 are provided at predetermined horizontally spaced locations of the guide member 12, corresponding to the horizontal spacing between the threaded insert members 20, with additional clearance apertures 22 being provided to provide increased versatility in the placement of the threaded inserts. Securing bolt means 24 pass through clearance aperture 22, with the threaded end thereof entering insert member 20 and collar 26 interposed between the wall surface and the guide member 12 to provide a desired spacing therebetween. Thus, it should be appreciated that the guide member 12 may be secured at a desired vertical location of the wall 100 being formed, with the guide member 12 being simply removed thereafter, and if desired threaded insert openings 20 covered by mortar.

Guide member 12 includes horizontally disposed guide surface 14, which when properly positioned will be maintained in exact horizontal alignment of the successive courses of brick work, such as 102, 104, 106, 108, 110. In order to assist in such proper levelling, a spirit level 15 may be provided within the guide member 12 and clearance apertures 22 are of a sufficient extent in excess of the shank of bolt 24 to permit accurate horizontal alignment of guide member 12. A second guide member 30 is provided to ride along the horizontal extent defined by guide surface 14 of the guide member 12. Second guide member 30 preferably includes a plurality of wheel

members 32 to facilitate the movement thereof along the horizontal extremes of guide surface 14. Guide member 30 includes rearward projections 34 extending about channel member 12 for retaining guide member 30 thereon.

Guide member 30 further includes a vertically oriented clearance aperture 36 which receives the elongated portion 42 of vertically reciprocable tool member 40. The tool member 40 is of a generally L-shaped configuration, and includes a platform 44 at its free end, the lower surface of which 45 abuttingly engages the brick being positioned for accurately positioning the individual bricks forming the successive courses of brick work, in the manner which will henceforth be described in greater detail. The extent of the vertically reciprocable movement of tool member portion 42 within clearance aperture 36 is defined by a stop means 50. Stop means 50 may take the form of a collar vertically adjustable along the length of tool portion 42, with the position thereof being maintained by a pin member 52 inserted within transverse opening 54 of the collar and a desired one of the apertures 56 equally spaced along the length of tool portion 42. Apertures 56 are spaced an amount corresponding to the desired placement between successive courses of the brick work (such as 108, 110). Should it be desired to provide an adjustment intermediate a full stop position (between apertures 56), a shim 56' may be suitably positioned between surface 37 and collar 50, as shown in FIG. 7. Alternatively, the opening 54 in the collar 50 which receives pin 52 may be off-center, as shown in FIG. 7A, with the inverting of the collar providing an intermediate adjustment. This would permit an adjustment of mortar thickness, or provide the versatility required to position the brick about doors or windows.

In accordance with a particular form of the invention, the width W of platform portion 45 corresponds to the width of the individual brick member being positioned. A horizontal guide means in the form of indentations 17 are provided along the length of guide member surface 14, to serve as a detent mechanism for receiving the downwardly biased upper roller member 32' of the guide member 30. It will be noted that these guide members 17 are successively spaced apart a half brick width so as to accommodate the staggering placement of successive courses of brick work. Thus, as guide member 30 is horizontally translated along guide surface 14, two detent positions correspond to the horizontally adjacent brick location, with the vertical edges 46 of platform member 44 being in alignment with the vertical edges of the brick being placed (as best seen in FIG. 2).

Reference is now made to FIGS. 2-4, with respect to the manner in which the device of my invention is used in conjunction with the positioning of successive courses of bricks upward from foundation 200. The initial courses of bricks such as 202, 204 and 206 are put down in the conventional manner, to serve as a reference from which the successive courses 208, 210, 212, etc. are to be placed. Threaded insert members 20 are placed in the mortar intermediate courses 202 and 204 at horizontally separated locations corresponding to the separation between guide member openings 22. Alternatively, the threaded inserts may be placed in the mortar intermediate the foundation and the first course of bricks (202). As brick course 206 is applied, the mortar will be sufficiently set about the threaded insert 20 to then permit the securement of the guide member 12, containing horizontally translatable member 30.

In the placement of brick course 206, the collar member 50 will be located at the uppermost extreme of tool portion 42, such that the pin will be in aperture 56-1. This may typically correspond to a situation where the width of the collar equals one-half of the combined width of the brick and intermediate mortar layer and the topmost surface 37 of guide member 30 extends upward from the mortar layer intermediate brick course 204, 206 a similar half-width of the combined brick and mortar

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layer. The tool member 50 shown in FIGS. 2 and 3 is of a shortened length, typically having only five stop positions corresponding to equally spaced apertures 56-1-56-5, so as to limit the amount which the end of portion 42 must translate along foundation 200. (In applying courses of brick work at successively higher locations [as shown in FIG. 5], the tool 200 may have member 42 of a significantly longer extent so as to permit, for example, ten successive courses of brick work to be guided from a single vertical location of guide member 12.) In FIG. 2, the collar member 50 is positioned at stop aperture 56-3, corresponding to the third course of brick work 210 to be guided by the particular location of guide member 12. It is to be noted that surface 45 of the platform portion 44 abuts the upper surface of the brick member shown as 210', with the width of the platform 44 corresponding to the desired placement of the opposed vertical walls of brick member 210'. This is achieved as noted in FIG. 1 by suitable horizontal guide means along the length of guide member 12, which may take the form of the indentations 17 shown in FIG. 1 or markings 17' as shown in FIG. 2. It should be naturally understood at this point that to place the horizontally adjacent brick 210'' (shown dotted), it is merely necessary to:

- (a) move guide member 30 horizontally along the guide surface 14 of the guide member 12 another brick width, as determined by indicia means 17';
- (b) place the brick 210'' in approximate position; and
- (c) vertically reciprocate tool member 40 downward, with the limited extent of such vertical movement serving to accurately place the brick 210'' in position.

When the course of brick shown as 210 is completed, a mortar layer of approximate thickness is then applied, with the collar 50 being moved to the next stop position (defined by aperture 56-4) and the tool member 30 horizontally translated along guide member 12 as the successive bricks are located and urged into position. The mortar layer may be applied by a container which may be removably secured to platform 44 and is designed to dispense the required thickness of mortar.

Reference is now made to FIG. 5, which shows the first channel member 12 positioned as shown in FIG. 2, in conjunction with the next adjacent channel member 12-1, positioned at a vertically spaced location of the wall. The channels may advantageously extend over the edge of the building, and if brick-work is to be applied to all sides of the building at the same time, it will be necessary to stagger the channels as shown by channel 12-2 along the side of the building. In placing the threaded inserts within the brick-work, they may be placed one above the other, with the accurate positioning of the successive guide members such as 12 and 12-1 being obtained by accurately gaging the distance shown as x , by a board or other means cut to a predetermined length. After guide member 12-1 is in place, it should naturally be understood that guide member 12 may be removed, with that guide member being placed at a successively higher position corresponding to the distance x above guide member 12-1.

Reference is now made to FIG. 6, which indicates a modified utilization of my invention, in conjunction with the application of a brick veneer surface to a previously formed frame structure 300. The first course of brick-work 302 is applied to foundation 300 in a conventional manner, exercising extreme care to place in a level horizontal plane. Alternatively, where the foundation is uneven, as shown by the exaggerated foundation line 301, the apparatus of my invention may be used to position the first row 302 on mortar layer 303. Guide member 12 is positioned in a predetermined vertical distance above the predetermined top surface of brick course 302, and secured to the frame structure as by nails 304. Tool member 40 is now located within clearance aperture 36 of guide member 30 in the opposite manner as discussed above in conjunction with FIGS. 1-5. That is, platform 44 depends

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downwardly from the guide 12, with collar member 50 being similarly positioned to abut the top surface 37 of guide member 50, as the tool portion 42 is moved downward in its vertically reciprocal phase. It should be naturally understood that the spacing between adjacent aperture means 56 still corresponds to the desired spacing between the combined brick and mortar width, with the successive courses of brick-work being guided into position from a fixed vertical location of guide member 12, as the collar member 50 is moved to adjacent stop positions defined by the apertures 56.

As a further modification of the general arrangement shown in FIG. 6, the channel 12 may be secured to other support members about the building, such as previously positioned upright members. This is typically shown in FIGS. 8, 9, and 10 by brackets 350, 351 mounted to uprights 352 by bolts 354, and channel member 12 is, in turn, mounted to bracket 350 by bolt 355.

It should be further understood that different sizes and spacing of brick-work may be conveniently accommodated by tool members 40 of corresponding dimensions and having a spacing between the stop positions defined by the apertures along tool portion 42, corresponding to such desired brick spacing.

It is therefore seen that the instant invention provides an extremely simple apparatus for accurately positioning and guiding both horizontally adjacent bricks within a particular course of brick-work, and the vertically adjacent courses of brick, without requiring movement of the basic guide member between such vertically adjacent courses of brick-work.

In the foregoing, the instant invention has been described in conjunction with preferred embodiments. Since many variations will now become obvious to those skilled in the art, it is accordingly desired that the breadth of the claims not be limited to the specific disclosure herein contained but only by the appended claims.

The embodiments of the invention in which an exclusive privilege or property is claimed are defined as follows:

1. A mason's guide for positioning successive courses of bricks along a wall in horizontally aligned, vertically adjacent relationship, comprising in combination:
 - a first guide member including a straight guide surface of an appreciable length, in the same order as the horizontal extent of the courses of brick to be guided into position;
 - means for securing said first guide member to at least one predetermined fixed vertical location of the wall, such that said guide surface is disposed parallel to the horizontal direction of the brick course;
 - a second guide member mounted to said first guide member, and freely movable along the horizontal extent of said guide surface;
 - said second guide member of a horizontal extent in the same order as the width of brick being positioned;
 - a tool member vertically reciprocable within said second guide member;
 - said tool member of a generally L-shaped configuration including a first portion extending through a vertical clearance aperture in said second guide member, and a second portion, extending transverse to said first portion and including a platform member for abuttingly engaging a surface of a brick being positioned;
 - a stop means along the length of said first portion for predeterminedly limiting the extent of the vertically reciprocal movement of said tool towards said second guide member, with the distance between the limit of the tool platform vertical movement and said guide surface corresponding to the desired location of the brick course being formed with reference to said guide surface;
 - the horizontal movement of said second guide member along said first guide member and the predetermined

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extent of vertical movement of said tool member towards said second guide member serving to position horizontally adjacent bricks along a course having a predetermined vertical spacing from said guide surface.

2. A mason's guide as set forth in claim 1:
said platform member of a horizontal extent substantially equal to the width of brick being positioned; horizontal guide means along said guide surface for positioning said second guide member at successively horizontal locations corresponding to the desired horizontal spacing of horizontally adjacent bricks in the particular course being positioned.
3. A mason's guide as set forth in claim 1:
said securing means for said first guide member including nails for fastening said first guide member to a frame wall to be brick veneer coated, such that said first guide member is removably secured to said fixed vertical location along said frame wall.
4. A mason's guide as set forth in claim 1:
further including adjustment means cooperating with said stop means for successively locating said stop means along said tool first position, at a successive plurality of vertically spaced positions having a spacing corresponding to the desired spacing between vertically successive brick courses;
such that successive courses of bricks are guided into position while said first member is at its predetermined fixed location along the wall, and said stop means is adjusted to such vertically successive positions.
5. A mason's guide as set forth in claim 4:
said stop means including a collar member movable along said first portion, and said adjustment means being a plurality of apertures along the length of said first portion, with successive ones of said aperture means being spaced apart an amount corresponding to the spacing between successive brick courses;
and a pin member insertable through an opening of said collar member and the desired one of said aperture means for maintaining said collar at its desired loca-

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- tion for the particular brick course being positioned.
6. A mason's guide as set forth in claim 1:
said securing means for said first guide member including threaded insert means within the mortar of a previously formed course of brick and bolt means extending through clearance aperture means of said first guide member into said threaded insert means, such that said bolt means removably secures said first guide member to the predetermined fixed vertical location defined by said threaded insert means.
 7. A mason's guide as set forth in claim 6:
further including adjustment means cooperating with said stop means for successively locating said stop means along said tool first portion, at a successive plurality of vertically spaced positions having a spacing corresponding to the desired spacing between vertically successive brick courses;
such that successive courses of bricks are guided into position while said first member is at its predetermined fixed location along the wall, and said stop means is adjusted to such vertically successive positions.
 8. A mason's guide as set forth in claim 7:
said stop means including a collar member movable along said first portion, and said adjustment means being a plurality of apertures along the length of said first portion, with successive ones of said aperture means being spaced apart an amount corresponding to the spacing between successive brick courses;
and a pin member insertable through an opening of said collar member and the desired one of said aperture means for maintaining said collar at its desired location for the particular brick course being positioned.

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WILLIAM D. MARTIN, JR., *Primary Examiner.*