

[54] **BRICK LAYING JIG**

[76] Inventor: **Richard H. Viau**, 409 Broadview Dr.,
Syracuse, N.Y. 13203

[22] Filed: **Aug. 30, 1971**

[21] Appl. No.: **176,041**

[52] U.S. Cl. **33/85**

[51] Int. Cl. **E04g 21/18**

[58] Field of Search 33/85, 86; 52/749

[56] **References Cited**

FOREIGN PATENTS OR APPLICATIONS

704,033 2/1954 Great Britain 33/85
1,028,318 5/1966 Great Britain 52/749

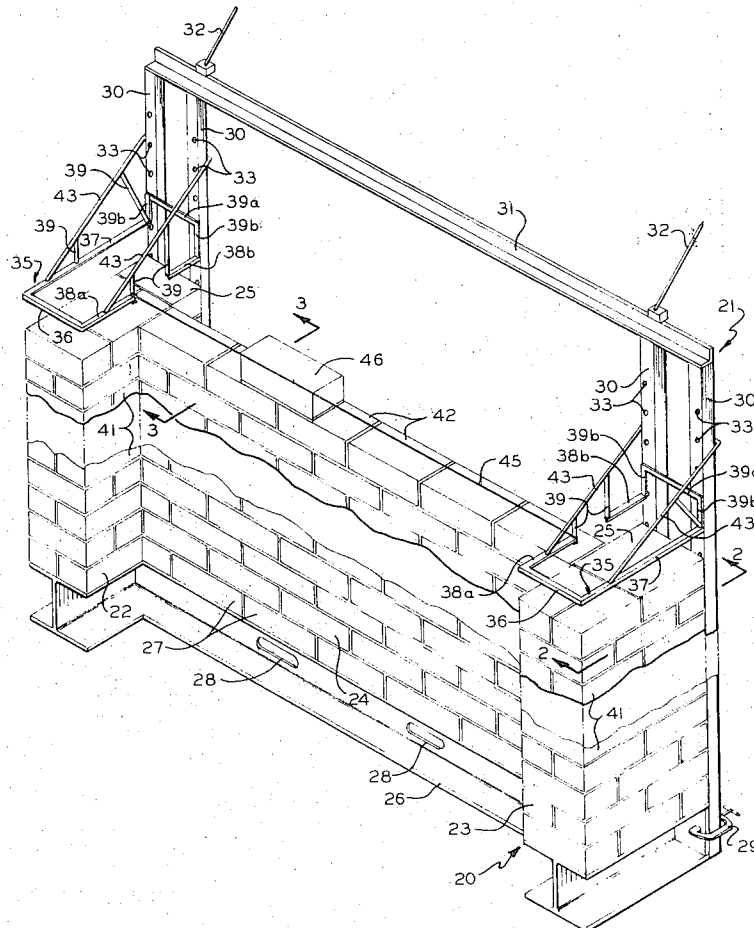
Primary Examiner—Louis R. Prince
Assistant Examiner—Charles E. Phillips
Attorney—Burns & Jenney

[57] **ABSTRACT**

A jig for off-the-job laying of irregular-shaped sections

of brick facade has a flat surfaced base and a backstop including a plurality of precisely vertical members secured to the base at their bottom and braced to the factory building at their top. One or more horizontally extending guide frames, outlining with their inner edges a portion or all of the facade top, are secured to the vertical members with upwardly sloping support rods having ends hooked around in back of the members. Each member has holes in its front surface at intervals spaced one above the other a distance equal to the brick height plus desired mortar joint thickness and each frame has a pair of rearwardly projecting pins adapted to be precisely engaged in the holes of adjacent members at the same level whereby the pins may be disengaged and the frames slid upward to the next pair of holes after each course of bricks is laid. When more than one frame is used a mason's line may be stretched from one to the other as a guide in constructing a connecting flat-faced portion of the irregular shaped facade.

2 Claims, 16 Drawing Figures



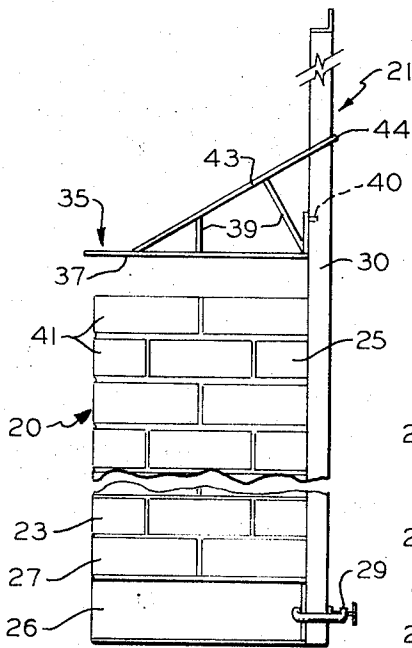


FIG. 2

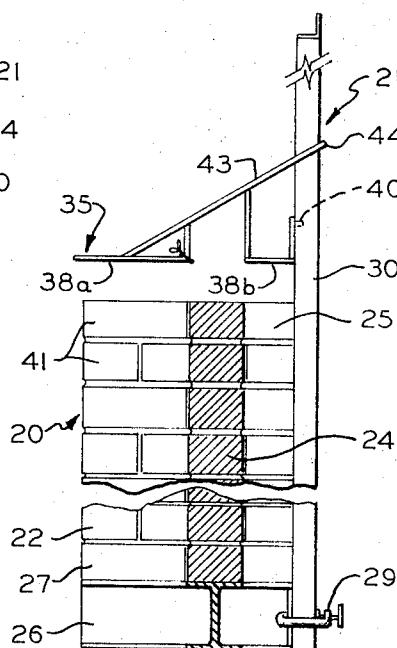


FIG. 3

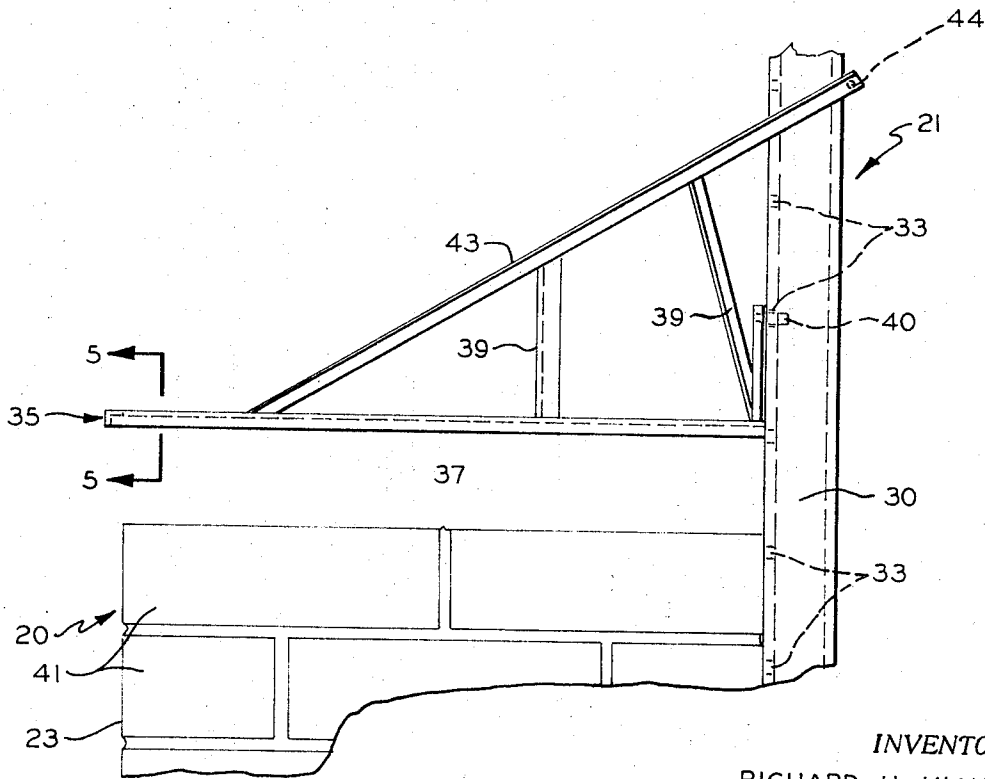


FIG. 4

INVENTOR.

RICHARD H. VIAU

BY

Bruno & Jenney
ATTORNEYS

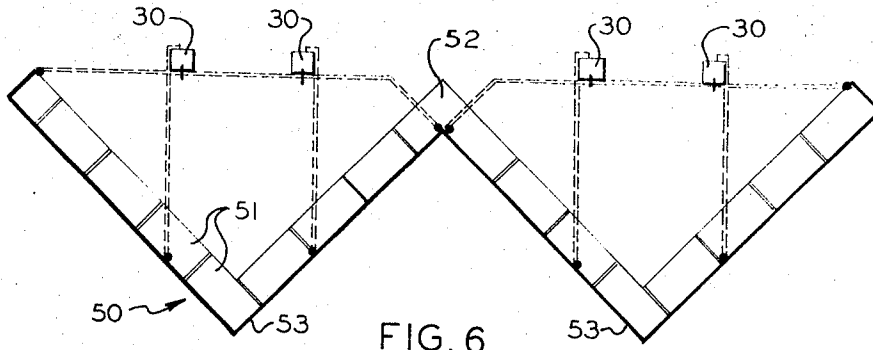


FIG. 6

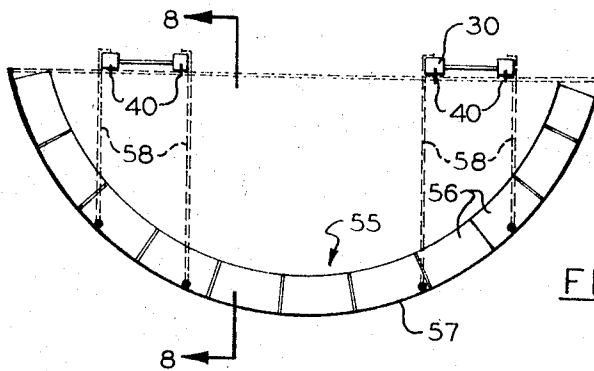


FIG. 7

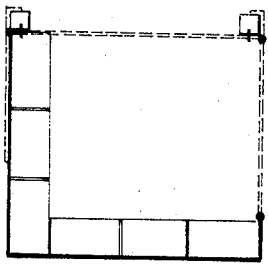


FIG. 9

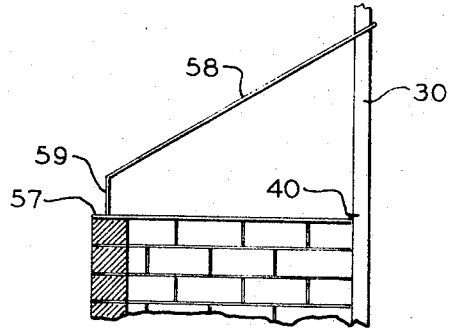


FIG. 8

INVENTOR.
RICHARD H. VIAU
BY
Bruno & Jenney
ATTORNEYS

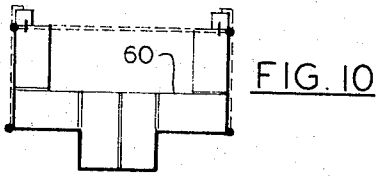


FIG. 10

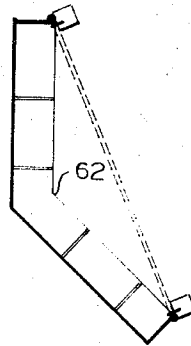


FIG. 12

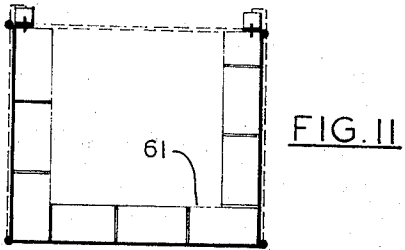


FIG. 11

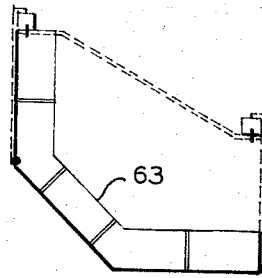


FIG. 13

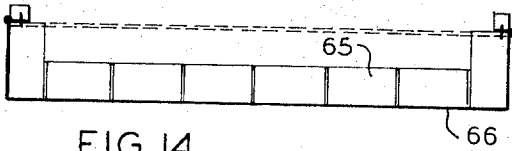


FIG. 14

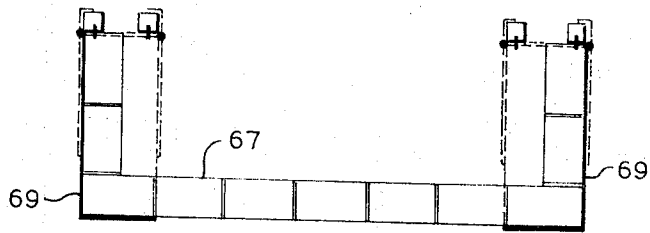


FIG. 15

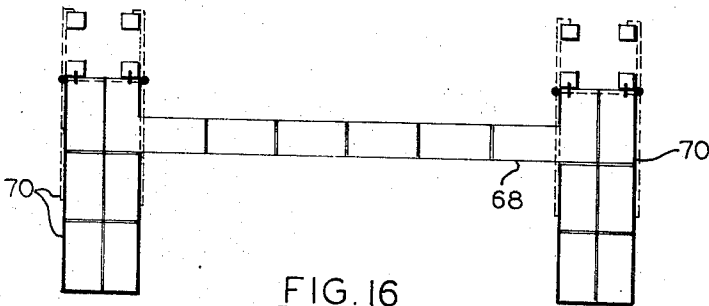


FIG. 16

INVENTOR.
RICHARD H. VIAU

BY

Burns & Jamney
ATTORNEYS

BRICK LAYING JIG

BACKGROUND OF THE INVENTION

This invention relates to a jig structure for laying irregular portions of a brick facade and more particularly for laying a story-high portion of facade off-the-job so that the section may be hoisted into place as a unit.

Heretofore, such jigs have been parts of complicated, bricklaying machines having mortar-pouring and brick-spacing components or have been stakes fixed at each corner of the section with provision for supporting looped-around mason's line for aligning brick surface edges. The bricklaying machines are complicated and expensive and both types have many parts extending vertically to interfere with the bricklayer operator.

SUMMARY OF THE INVENTION

The present invention provides a guide frame whose inner edges outline the shape of the irregularly shaped sections or a portion thereof. The guide portions of each frame is preferably made of angle irons whose upper horizontally disposed flanges face inward so that the bricks may be laid inside the frame with the top of each course level with the top of the flange. Each frame is braced to comprise a rigid unit and has a pair of brace portions sloped upward for securing it to a backstop.

A base provides a flat surface for the first course of bricks and a plurality of vertical backstop members are secured at their bottoms to the base and are secured together at their top and braced to the factory building walls or roof so as to be precisely vertical.

Each vertical member has a hole for each course spaced one above the other, the spacing being a brick height plus the desired thickness of the mortar joint, and each frame has horizontally projecting pins for precisely engaging holes at each level in a pair of vertical backstop members. The sloped braces terminate in portions hooked behind the vertical members so that, as each course is completed, the frame may be tilted upward at the front to disengage the pins and slid upward for engaging the pins in the next pair of holes.

Many modern buildings have projecting column portions, of rectangular or other shaped cross-sectional configuration, connected by a flat facade portion of bricks laid end to end. For such irregular shaped sections a guide frame is provided for each column portion and a mason's line is stretched from one frame to the other to delineate the upper front edge of the bricks in the flat portion.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective view of an irregular shaped section of brick facade together with a jig embodying the invention used in its construction;

FIG. 2 is a fragmentary end view thereof as viewed in the direction of the arrows 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view on the line 3—3 of FIG. 1;

FIG. 4 is an enlarged fragmentary view of a part of the jig shown in FIG. 1;

FIG. 5 (on the first sheet) is an enlarged sectional view on the line 5—5 of FIG. 4;

FIGS. 6 and 7 are diagrammatical plan views of other columnar sections of brick facade, the guiding portions of the guide frames therefor being shown as a heavy full line and the brace portion of the frames being shown

in broken lines, vertical braces being indicated by a black dot;

FIG. 8 is a sectional view on the line 8-8 of FIG. 7; and

FIGS. 9-16, inclusive, are diagrammatical views, similar to FIGS. 6 and 7, of other facade sections with the guide frames similarly indicated.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1-4, inclusive, a section 20 and its jig 21 is shown, the section comprising two like rectangular columnar portions 22 and 23 connected by a flat facade portion 24 comprising bricks laid end-to-end. It will be noted that the columnar portions 22 and 23 each include a portion 25 projecting inward of the building face so that two sections may be secured to a building on either side of projecting floor sections for forming a balcony. Section 20 is shown as of indeterminate height but it will be understood that it may extend from one floor to the next and have a similar section secured to the building above it with a suitable seal therebetween.

The jig 21 comprises a flat base 26 which may be conveniently formed of I beam sections welded together. The base rests on the factory floor and is shimmed so as to have a precisely horizontal upper surface. Usually the first course of bricks 27 is laid on a sheet of plastic placed on the base to prevent sticking of the bricks to the base. Base 26 may have holes 28 therethrough so that it can be moved by a lift truck.

Secured to the base, as by clamps 29, are a plurality of vertical members 30—30, shown here as 4. Members 30 may be of any convenient cross-sectional configuration but are here shown as rectangular tubes which are secured together by an angle 31 welded to their tops. Braces 32 secured at one end to the cross angle 31 have their other end secured to the factory walls or ceiling, not shown, to maintain the members 30 precisely vertical.

Each member 30 has a plurality of aligned holes 33, one above the other, spaced from one another a distance equal to the brick height plus the desired thickness of mortar. The lower holes are spaced above the base the distance equal to the brick height.

A brick laying guide frame 35, best seen in FIG. 1, is adjustably secured on each pair of members 30. The brick guide portion of each frame comprises a front portion 36, an end portion 37 and an inner portion in two parts 38a and 38b. The guide portions are all formed of angles, typically ½ inch angles to minimize interference with the operator's view, welded together with various cross braces and vertical braces 39, which may be angles, rods or bar stock of other shapes, to form a rigid assembly.

One of the cross braces 39a at the rear carries rearwardly projecting pins 40, best seen in FIGS. 2 and 3, adapted to fit precisely in the holes 33 of members 30. The cross brace 39a is elevated by a pair of vertical braces 39b—39b so that when frame 35 is adjusted upward it does not disturb any of the bricks in the column portion 25. The rearward bricks of portions 25 are laid flush with the members 30.

All of the bricks 41 of the columns 22 and 23 are laid with their outer upper edges abutting the inwardly projecting horizontal flange of the brick guide portions of the frame, as best seen in FIG. 5, and the upper sur-

faces of the bricks are adjusted level with the top of the angle by tapping the bricks down on a mortar layer. The space between guide portions 38a and 38b allows the bricks 42 of the center section portion 24 adjacent columns 22 and 23 to be laid without interference.

Each frame 35 is provided with a support brace 43 at each side which slants upwardly and rearwardly to an end 44 which is hooked around behind a member 30, as best seen in FIG. 4. Where the frame 43 is long it may be desirable to have members 30 notched to receive the hooked ends or the ends may be secured, as by a clamp, to the vertical members. It will also be noted that the front ends of braces 43 are secured to the guide frame 35 short of the front end of the frame so as not to interfere in laying the front bricks 41.

In laying the bricks 42 of the center flat panel 24 a mason's line 45 or elastic cord is tied around a brace 39 at the end of guide side member 38a of one frame 35 to the other and the upper front edges of the bricks 42 are aligned with this line, as is usual, as indicated by the brick 46 in FIG. 1.

Two men, preferably, work on the section 20 so that frames 35 can be raised simultaneously after each course is laid. After the frames 35 are raised, mortar is applied to the completed course and the bricks laid within the frames 45 and along line 45 in the usual manner, the bricklayers tapping each brick as it is laid down level with the top of the guide portions of the frames and with the line 45.

Other modified forms of jigs according to the invention are shown in FIGS. 6-16, inclusive.

Referring to FIG. 6, a section 50 is shown formed of two triangular columns of bricks 51 interlocked at the center 52. Two mirror image guide frames 53 are used, the guide portions being indicated in heavy full lines and brace portions, including support braces, being indicated in broken lines. Small circles indicate where vertical braces are used and the vertical members of the backstop are indicated by squares.

In FIGS. 7 and 8 a semicircular section 55 is shown, the bricks 56 thereof being specially curved. The guide portion 57 of the single frame is semicircular and since no bricks are laid next to the backstop members 30, the pins 40 need not be raised above the level of guide 57. Support bars 58, best seen in FIG. 8, must be attached to the guide 57 so they are attached by vertical portions 59 to give freedom of movement to the bricklayers.

In FIG. 9 an L-shaped section is shown with its frame diagrammatically illustrated as in the previous Figures.

FIGS. 10-13 show sections 60, 61, 62, and 63, respectively, all requiring the pins to be raised above the level of the guide portions of their respective frames.

FIG. 14 shows a section 65 having two column portions connected by a relatively short flat panel wherein the flat panel is outlined by the guide portion of the single frame 66.

FIGS. 15 and 16 show sections 67 and 68, respectively, where the comparatively larger column portions require separate frames 69-69 and 70-70 and the flat panels in each are built to a stretched mason's line therebetween. In building the section 68 the comparatively long column portion frames 70 require a four post backstop for each frame.

It will be apparent that many other shapes of facade sections may be built using the jig frames outlining section portions where the section is stable, that is, not likely to be toppled during erection.

During the erection of each of the above-described sections, bolts, not shown, are installed in the mortar, or in holes through the bricks, projecting from the back of the section by which the sections may be fastened to the steel or other fabricated portion of the building. The mortar used may be of the adhesive type now on the market or suitable slings or suction type lift frames may be used for lifting the completed sections into place by crane.

I claim:

1. A jig for laying irregular shaped sections of brick facade in a factory having a substantially level floor and upper structure including walls and a roof, each section having at least one columnar portion projecting forward from the facade, comprising: a flat surfaced base, the base being shimmed and trued on the factory floor to have its upper surface disposed precisely horizontally and extending to underlie the bricks of the section to be laid, a plurality of backstop vertical members secured at their bottoms to the base and connected together at their tops and braced to the factory upper structure to align the vertical members precisely vertical, one vertical member being placed at each side of each section columnar portion so as to abut the inside surface of the portion when it is laid, and one frame for each columnar portion movably mounted on the pair of vertical members adapted to abut the columnar portion, the frame consisting of a horizontally extending guide portion formed of metal angles whose flange width is a minor fraction of the height of the brick being laid, one flange of each angle extending horizontally for having the flange ends outlining at least a portion of each side of the columnar portion of the section other than the side abutted by the vertical members, the frame having brace portions secured to the guide portion to form a rigid unit, the brace portions extending upward from the guide portion and disposed outwardly of the outlining flange ends, the brace portions including a pair of braces sloping upward to ends hooked around the back of respective vertical members, the frame having a rearwardly projecting pin at each side at a level above the guide portion, and the frame-mounting vertical members each having a plurality of vertically aligned holes in its front surface to receive the pins, the aligned holes being spaced apart a distance equal to the brick height plus a desired thickness of mortar, the bottom hole in each member being spaced above the base a distance adapted to space the column outlining upper flange surfaces of the guide portion a distance equal to the brick height, whereby bricks are laid in courses within and level with the top of the guide portions and, when one course of bricks is laid, the frame is tilted up at the front withdrawing the pins from the holes and then is slid upward for inserting the pins in the next holes for guiding the laying of bricks on an applied layer of mortar for the next course, each brick being tapped down on the mortar layer with its top level with the top of the guide portion.

2. The jig defined in claim 1 having more than one frame, the frame being spaced and supported on respective vertical members and having a line of elastic material stretched from one frame to the next, whereby each frame guide portion outlines a columnar portion of the desired section and bricks forming a flat panel portion of the section connecting the columnar portions are laid course by course with the columnar portions with an upper edge along the line defined by the stretched line and are interlocked with the bricks in the columnar portions.

* * * * *