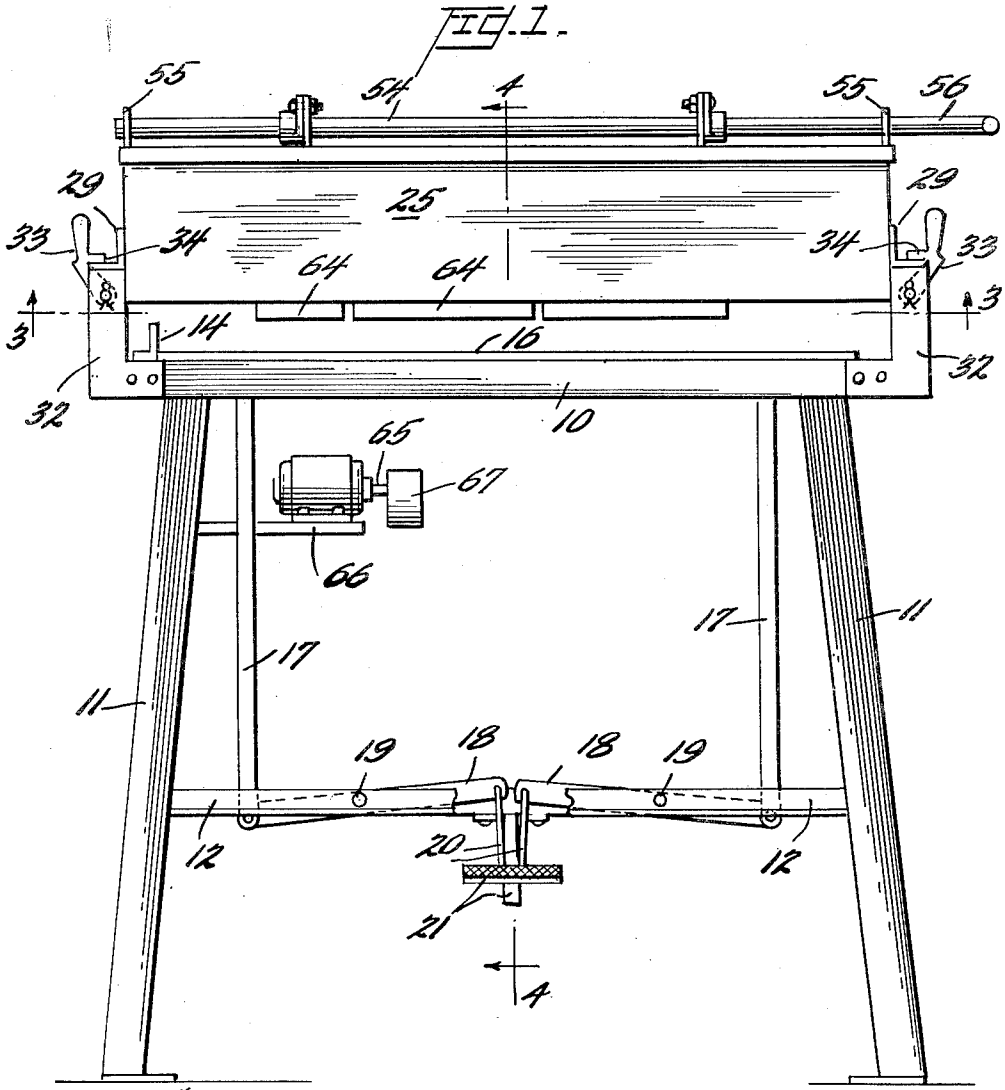
Oct. 14, 1952 J. C. DAVIS 2,613,423

APPARATUS FOR MAKING STRUCTURAL ELEMENTS FOR BUILDINGS

Filed Jan. 15, 1951 3 Sheets-Sheet 1

FIG. 1.



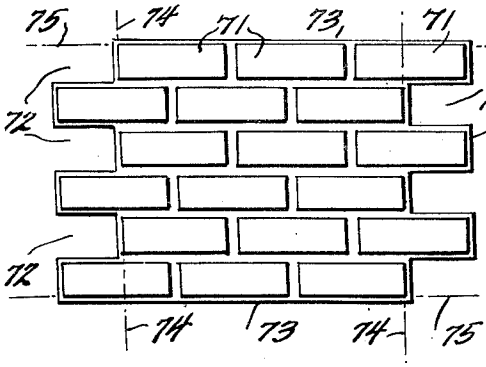


FIG. 8.

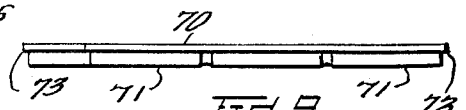


FIG. 9.

INVENTOR

Jack C. Davis,

BY Parker and Walsh,

ATTORNEYS

Oct. 14, 1952 J. C. DAVIS 2,613,423

APPARATUS FOR MAKING STRUCTURAL ELEMENTS FOR BUILDINGS

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FIG. 2.

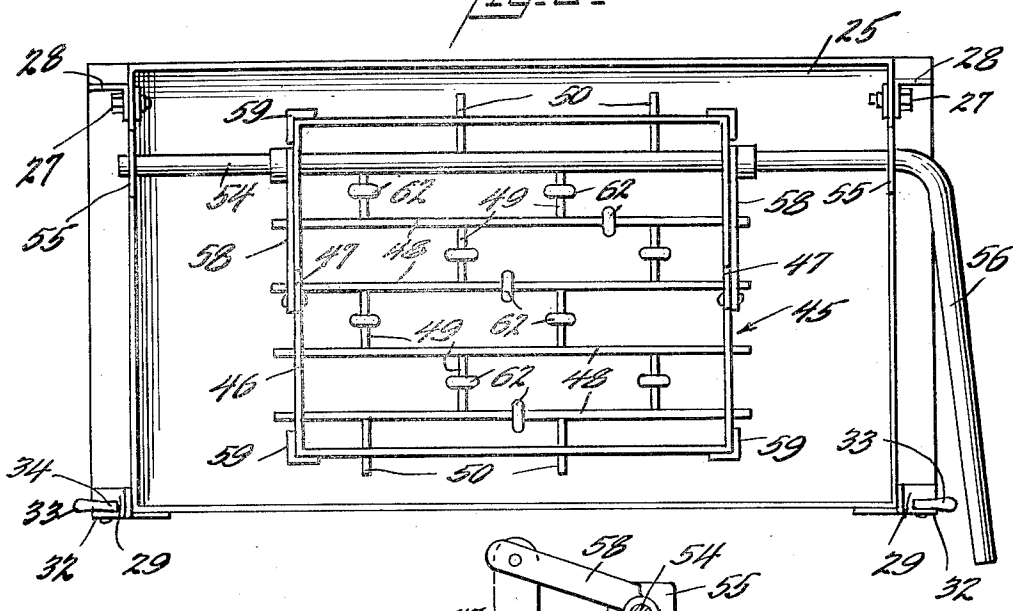
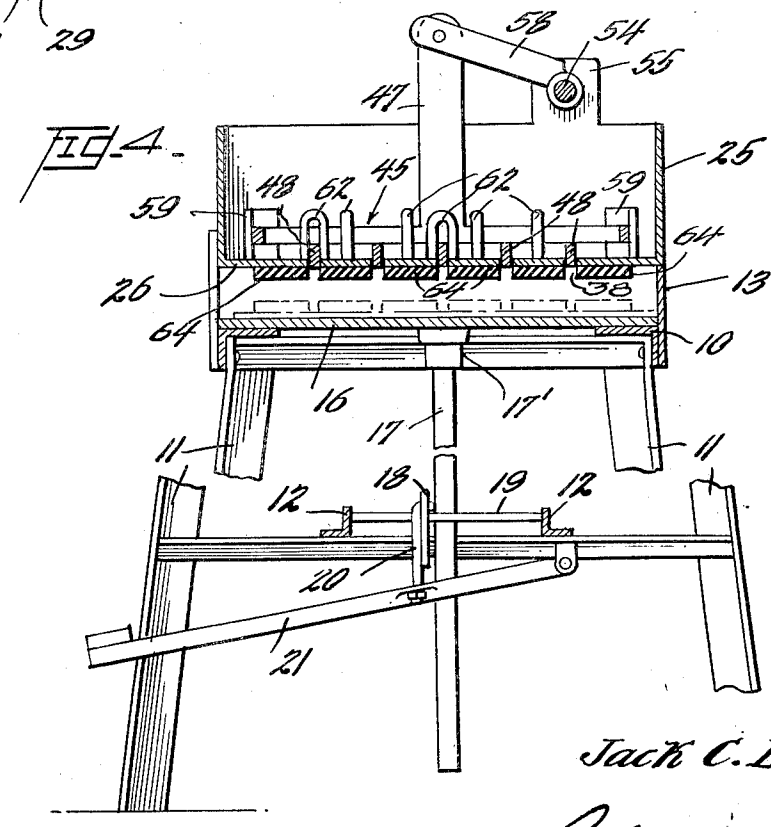


FIG. 4.



INVENTOR

Jack C. Davis,

BY Parker and Walsh.

ATTORNEYS

Oct. 14, 1952 J. C. DAVIS 2,613,423

APPARATUS FOR MAKING STRUCTURAL ELEMENTS FOR BUILDINGS

Filed Jan. 15, 1951 3 Sheets-Sheet 3

FIG. 3.

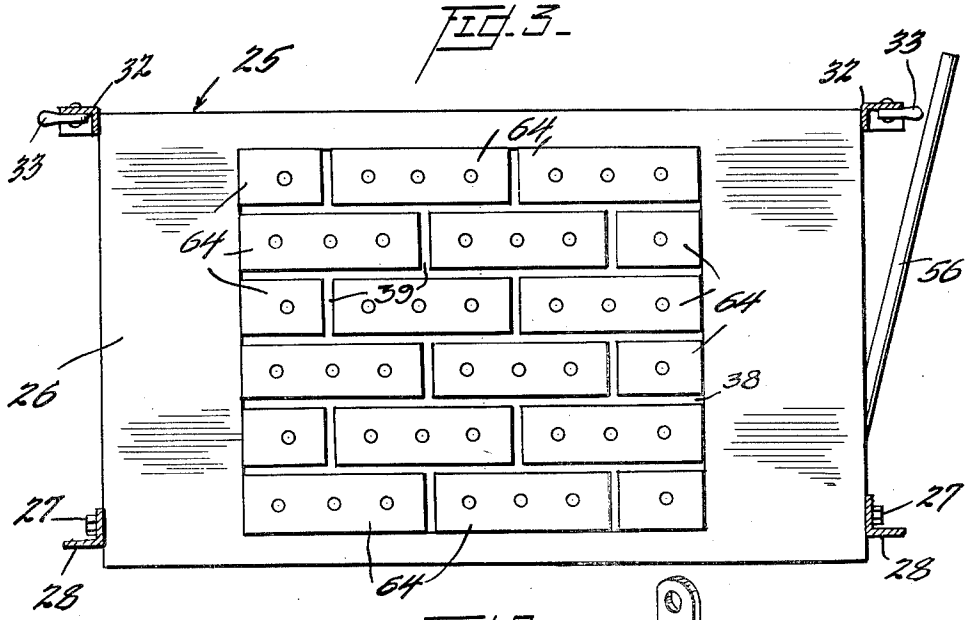


FIG. 5.

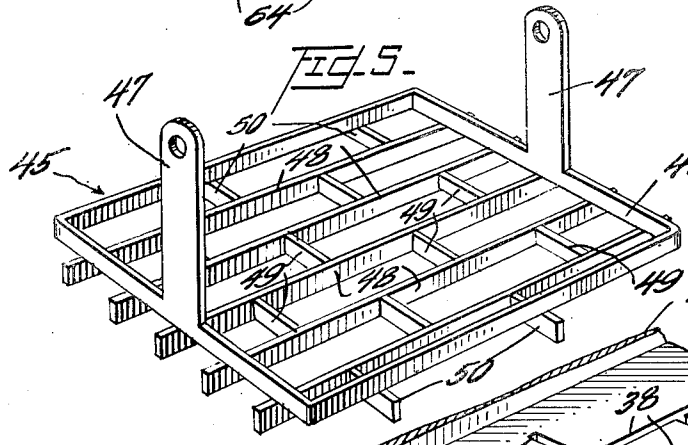


FIG. 7.

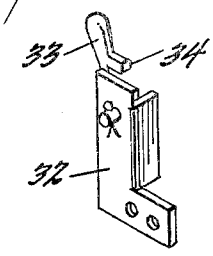


FIG. 6.

INVENTOR

Jack C. Davis,

BY Parker and Walsh.

ATTORNEYS

Patented Oct. 14, 1952 2,613,423

UNITED STATES PATENT OFFICE

2,613,423

APPARATUS FOR MAKING STRUCTURAL ELEMENTS FOR BUILDINGS

Jack C. Davis, Charleston, W. Va.

Application January 15, 1951, Serial No. 206,064

15 Claims. (Cl. 25—41)

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This invention relates to an apparatus for making structural elements for buildings.

In my copending application, Serial No. 198,384, filed November 30, 1950, I have disclosed a novel type of structural elements for buildings, and more specifically facing units which can be economically produced and which, when assembled into the finished building, present the appearance of a solid masonry building. These units are formed of backing sheets, preferably of a relatively rigid fiber board type, possessing a high degree of insulating value. On the backing sheets is arranged in predetermined position, corresponding to the usual staggered arrangement of bricks, a plurality of elements actually formed of brick material but made relatively thin so as to reduce the cost thereof. These elements are secured by adhesive to the backing sheet and the spaces between the thin brick elements are partially filled with mortar. Each unit has the backing sheet thereof corresponding in contour to a predetermined assembly of the brick elements by having all edge portions projecting slightly beyond the brick elements for the reception of fastening elements, such as nails, for securing the units against a supporting surface such as the sheathing of a building.

The brick elements assembled on the unit project from opposite ends thereof forming spaces therebetween to receive the projecting brick elements and the corresponding backing sheet portions of the next adjacent sheets. The units, so assembled, will form a wall in which the brick elements are continuously uniform in their staggered arrangement, just as if the wall had been assembled of conventional bricks. The spaces between the bricks of adjacent panels are then filled with mortar from a suitable extruding device to form the completed wall, and this mortar will match the mortar previously placed between the elements adhering to the backing sheet. The finished wall, so constructed, cannot be distinguished from a solid brick wall, the entire visible surface being composed of actual brick facing elements and the apparently conventional mortared joints therebetween. Such building units form the subject matter of the copending application referred to and are claimed therein. The present application is directed to the apparatus employed for making the units referred to.

An important object of the present invention is to provide a novel apparatus for quickly applying mortar between spaced brick or similar

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elements previously placed upon and adhered to a backing sheet, thus facilitating the production of a building unit of the type referred to and maintaining production costs of such units at a relatively low level.

A further object is to provide such an apparatus wherein a preassembled backing sheet with the spaced facing elements thereon may be placed in the apparatus and the latter operated to apply mortar to the spaces between the facing elements and press the mortar in position to bond it with the backing sheet and with the edges of the facing elements.

A further object is to provide such an apparatus having a hopper for mortar, and to provide means for controlling the flow of and applying the mortar in the spaces between the facing elements, the apparatus being of such nature that with a supply of mortar in the hopper, the units can be completed for installation in rapid succession.

A further object is to provide such an apparatus wherein the bottom of the hopper is provided with slots corresponding to the spaces between the facing elements together with a grid corresponding in shape to the slots to control the flow of mortar therethrough whereby, upon the placing of a semi-completed unit in position against the bottom of the hopper and associated elements, the grid can be raised to discharge mortar through the slots and then lowered to press the mortar into the spaces between the facing elements to impact the mortar and effect the bonding thereof with the edges of the facing elements and with the backing sheet between such elements.

A further object is to provide such an apparatus wherein a vertically movable platen receives a semi-assembled unit and is provided with guide means for exactly positioning the unit relative to the hopper and associated elements, and to provide means for raising the platen to move the semi-finished unit upwardly to a mortar-receiving position.

Other objects and advantages of the present invention will become apparent during the course of the following description.

In the drawings, I have shown one embodiment of the invention. In this showing,

Figure 1 is a front elevation of the apparatus,

Figure 2 is a top plan view,

Figure 3 is a horizontal sectional view on line 3—3 of Figure 1 showing, in effect, a bottom plan view of the hopper and associated elements,

Figure 4 is a vertical sectional view on line 4—4 of Figure 1, parts being broken away,

Figure 5 is a perspective view of the grid,

Figure 6 is a fragmentary perspective view of a portion of the bottom of the hopper,

Figure 7 is a detailed perspective view of a latch device,

Figure 8 is a face view of one of the semi-finished building facing units, and

Figure 9 is a top edge view of the same.

Referring to Figures 1 and 4, the numeral 10 designates a horizontal frame supported a suitable distance above the flooring by means of legs 11 of any desired type. Above the floor, the legs 11 are connected by angle iron braces 12 to render the supporting structure relatively rigid. At the rear of the apparatus, as shown in Figure 4, an upstanding stop plate 13 is connected to the frame for a purpose to be described. At one side of the apparatus, and at the left as viewed in Figure 1, is arranged an angle iron guide 14, this guide being perpendicular to the stop plate 13.

Arranged above the frame 10 and supported thereby is a rigid platen 16 preferably in the form of a steel sheet, arranged with one edge adjacent the guide 14. The platen is directly vertically movable and for this purpose is connected to rods 17 operable in guides 17' (Figure 4). The lower ends of the rods 17 are pivotally connected to the outer ends of levers 18 and these levers are pivotally supported intermediate their ends as at 19. The inner ends of the levers are pivotally connected by links 20 to a treadle 21. It will be apparent that downward movement of the treadle moves the inner ends of the levers 18 downwardly, thus moving the outer ends of these levers and the rods 17 upwardly to elevate the platen 16.

Above the platen is arranged a hopper 25 having a bottom wall 26. The hopper is pivotally connected adjacent its rear corners as at 27 to upstanding brackets 28 carried by the frame 10. The side walls of the hopper are provided adjacent their forward edges with brackets 29 of angle construction having their lower edges outstanding horizontally for a purpose to be described.

The front of the frame 10 at opposite sides of the apparatus is provided with angle brackets 32 to the upper ends of which are pivoted latches 33 having inwardly extending latch fingers 34 engageable against the tops of the horizontal flanges of the brackets 29 to clamp the hopper in the operative position shown in Figure 1, the front portion of the hopper being supported by the brackets 29 which rest on the upper ends of the brackets 32.

The bottom 26 of the hopper is slotted as shown in Figures 3, 4 and 5. These slots extend longitudinally and parallel to each other as at 38 (Figure 6) and these slots are connected by transverse slots 39. Beyond the outermost slots 38, the bottom 26 is provided with transverse slots 40 extending beyond the outermost slots 38 a distance approximately equal to the length of the slots 39. The slots 38 are in spaced parallel relation, but the slots 39 are relatively staggered, corresponding to the relation of the staggering of the spaces between the ends of the bricks of a wall, as will become more apparent later. Certain portions of the bottom 26, because of the formation of the slots, will be completely cut away as in Figure 6, and such portions of the bottom are supported by means to be described.

A grid indicated as a whole by the numeral 45 is arranged in the hopper 25. This grid comprises a rectangular supporting frame 46, the end portions of which are provided with upstanding arms 47 for a purpose to be described. The grid proper is formed of a plurality of spaced parallel bars 48 arranged vertically edgewise as shown in Figure 5, and these bars are connected by a plurality of transverse similarly shaped and arranged bar sections 49. To the outermost bars 48 are connected laterally extending bar sections 50. These various bars correspond exactly to the arrangement of the slots in the bottom 26, and it will become apparent that the bars 48 are slidable vertically in the slots 38; that the bars 49 are slidable vertically in the slots 39, and that the laterally extending bars 50 are vertically slidable in the slots 40. The various bars fit the slots and form closure means therefor under conditions to be described to prevent the flow of mortar downwardly through the slots until such flow becomes desirable.

A shaft 54 extends longitudinally of the apparatus above the hopper 25. This shaft is supported by ears 55 extending upwardly from and preferably formed integral with the end walls of the hopper. One end of the shaft 54 is bent as at 56 to form a lever end for rocking the shaft as will become apparent below. The shaft 54 carries arms 58 pivotally connected to the upper ends of the arms 47. It will be apparent that the rocking of the shaft 54 by the lever arm 56 will raise and lower the grid structure. To assist the proper movement of the grid structure, the bottom 26 of the hopper may be provided with upstanding angular guides 59 (Figures 2 and 4) engageable with the corners of the grid frame 46.

The various rods 48, 49 and 50 are accurately made and preferably welded together for operation in the slots of the hopper bottom 26. In the assembling of the device, those portions of the bottom 26 which are cut away by completely surrounding slots are anchored relative to adjacent bottom portions by inverted U-shaped yokes 62 welded in position to the portions of the bottom 26 with which they contact. Certain of these anchoring yokes will bridge across slots 38 and certain of them across slots 39 as will be apparent from Figure 2. These yokes receive therewithin the bars of the grid structure and serve not only to assist in guiding such structure for vertical movement, but also limit its upward movement.

Against the lower face of the hopper bottom 26 is secured a plurality of preferably rubber pressure blocks 64. These blocks have their edges spaced to correspond with the width of the slots 38, 39 and 40 as will be apparent in Figure 3. The outer edges of the outermost blocks 64 and the outermost ends of the slots 38 and 40 preferably define a perfect rectangle as shown in Figure 3, the purpose of which, in forming the finished building panel or unit, will be described below.

As will be described below, mortar is fed through the slots in the hopper bottom 26, and to assist in the feeding of the mortar, a motor 65 is preferably employed as shown in Figure 1, supported by a suitable bracket 66 and carrying an eccentric weight 67. When the motor is running, the eccentricity of the weight causes the apparatus to vibrate.

In Figures 8 and 9, I have shown a finished building panel constructed as disclosed and

claimed in my copending application referred to. It will become apparent that the disclosure in Figures 8 and 9 is for the purpose of assisting in an understanding of the present apparatus.

The finished panel comprises a backing sheet 70 against the face of which is arranged a plurality of relatively thin brick elements 71 arranged in staggered relation corresopnding to the normal relation of bricks in a wall as shown in Figure 8. By means forming no part of the present invention, these brick elements are positioned on the backing sheet in the arrangement shown and described and are secured to the backing sheet 70 by a suitable water-proof adhesive. This adhesive is applied only in the individual areas which will be covered by the brick elements, thus leaving the backing sheet exposed in the spaces between the brick elements. Because of the staggered relation of the bricks, certain of the bricks will project beyond one end of the unit forming spaces 72, while alternate bricks project from the other end of the unit to form similar spaces indicated by the same numeral.

The backing sheet 70 corresponds in shape to the plurality of brick elements thus assembled, but has edge portions extending slightly therebeyond throughout the profile of the assembled bricks, as at 73. This projection is exposed for the driving of nails through the backing sheet to attach the unit to a supporting structure such as the sheathing of a building. Finished units are assembled by inserting the projecting bricks of one end of the unit into the spaces 72 of the adjacent end of the adjacent unit. Similarly, each successive unit from the bottom is placed in edge to edge relation as the wall progresses vertically, and all spaces between the bricks of each unit and the bricks of adjacent units will correspond in width to the spaces between the bricks forming each individual unit. To provide for this mode of assembly, the projecting edges 73 of the backing sheet 70 are of a width equal to exactly one-half of, and not greater than, the width of the spaces between the brick elements of each panel.

The spaces between the bricks of each individual element are filled by the present machine within the rectangle defined by the vertical construction lines 74 and horizontal construction lines 75 in Figure 8. This rectangle corresponds to the rectangle defined by the blocks 64 and the outermost edges of the slots 38 and 40 in Figure 3. Thus the projecting edges 73 are left exposed, and these edges are covered and the spaces between edges of the bricks between adjacent panels are filled with mortar corresponding to the mortar between the bricks of the individual panels, within the lines 74 and 75, but a suitable extruding device forming no part of the present invention. This may be done as the assembly of units progresses in the wall, or after the wall has been fully erected.

Operation

The hopper 25 is supplied with mortar mixed to the proper consistency as is the usual practice and as dictated by experience in the operation of the apparatus. The lever arm 56 is normally in its lower position as shown in Figure 2, in which case the bars of the grid 45 will be arranged within the slots 38, 39 and 40 of the hopper bottom, as shown in Figure 4.

One of the semi-finished units 70 is prepared by covering areas of the backing sheet with a waterproof adhesive, placing the brick elements on the backing sheet and pressing the brick elements in position. The face of the backing sheet between the brick elements is left clear of adhesive for the bonding of the mortar thereto in making the completed unit with the present apparatus. The semi-finished unit thus prepared is inserted in the machine by sliding it across the top of the platen 16 with its left hand edge engaging the guide 14. The unit is pushed rearwardly into the machine until the rear edge of the unit contacts the stop plate 13 as shown in dotted lines in Figure 4. All of the spaces between the brick elements of the unit will then exactly coincide with the corresponding slots 38, 39 and 40.

The operator will then depress the treadle 21 to move the platen 16 upwardly to engage the brick elements against the rubber or similar blocks 64. Holding the treadle 21 in such position and with the motor 65 preferably running to vibrate the machine, the operator will lift the lever arm 56 to move the grid upwardly until the lower edges of the grid bars are arranged above the hopper bottom 26 to a sufficient extent to permit the mortar to flow from the hopper into the spaces between the brick elements. By practicing a short time, an operator can acquire the necessary degree of skill to determine when sufficient mortar has flowed through the slots 38, 39 and 40 and into the spaces between the brick elements 71. The operator will then move the lever arm 56 downwardly and this operation not only closes the slots 38, 39 and 40 to cut off the flow of mortar, but also results in the movement of the bars of the grid downwardly to compress the mortar in the spaces between the brick elements 71. When this operation is completed, the platen 16 is dropped by releasing the treadle 21, whereupon the completed unit 70 is removed from the machine.

The mortar will be applied only in the spaces between adjacent brick elements within the rectangle defined by the lines 74 and 75 in Figure 8. Thus the projecting edges 73 of the backing sheet will be left bare until the units are assembled into a completed wall as briefly referred to below. Attention is invited to the fact that the mortar applied in the spaces referred to will bond with the edges of the brick elements and with the face of the backing sheet between the brick elements, thus providing a permanent building structural unit.

The units are assembled as stated above, the horizontally projecting brick elements and associated backing sheet portions being inserted in the recesses 72 of the next horizontally adjacent unit. A suitable extruding device with the same mortar as used in the hopper 25 is then used for filling the spaces between the brick elements of adjacent units. The upper and lower edges of tthe backing sheet are straight and parallel, and the backing sheet projects beyond the brick elements a distance equal to one-half the width of the spaces between the brick elements of each unit. Therefore, when a next higher unit is placed in position with the edges of the backing sheet in contact, the space between each top brick of the lower unit and the lower brick of the next higher unit will be equal in width to the spaces between the brick elements of each unit. Such spaces are similarly filled with mortar, and the completed wall, because the surface is formed of real brick elements and mortar, cannot be distinguished from a solid masonry wall. The yoke members 62, as previously stated, serve to

anchor those portions of the hopper bottom 26 which are completely cut away by surrounding slots 38 and 39. These elements are accurately assembled in a suitable jig and the lower ends of the yokes 62 are welded in position after the grid 45 has been placed on the assembled bottom 26. The yokes 62 also limit upward movement of the grid.

In the actual use of the machine, it has been found that successive semi-finished units 70 may be very rapidly successively completed by the application of mortar between the brick elements in the manner described. Of course, after each unit is completed, it is set aside or stored for the setting and hardening of the mortar. The completed units are readily applicable against the sheathing of a building by nailing through the slightly projecting edges of the backing sheet. These edges provide not only nailing portions, but they serve also accurately to position the adjacent units relative to each other.

While the apparatus has been described with respect to the formation of units simulating conventional brick-laying practice, it will be apparent that the arrangement of the elements 71 may be changed and elements of different sizes may be employed. It will be understood, of course, that the formation of the grid and associated elements must correspond to the arrangement of whatever elements 71 are used.

I claim:

1. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, said support adapted to position the unit with the space between surface elements thereof below and in registration with said bottom hopper opening, and a vertically movable control element snugly fitting said opening and normally arranged therein to prevent the flow through said opening of filler material in said hopper, said control element being movable upwardly to a position uncovering said opening for the flow of filler material therethrough and downwardly to a position for pressing said material between the elements of said unit.

2. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, said support adapted to position the unit with the space between surface elements thereof below and in registration with said bottom hopper opening, a vertically movable control element snugly fitting said opening and normally arranged therein to prevent the flow through said opening of filler material in said hopper, said control element being movable upwardly to a position uncovering said opening for the flow of filler material therethrough and downwardly to a position for pressing said material between the elements of said unit, and lever means for effecting movement of said control element between its two positions.

3. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, said support adapted to position the unit with the space between surface elements thereof below and in registration with said bottom hopper opening, a vertically movable control element snugly fitting said opening and normally arranged therein to prevent the flow through said opening of filler material in said hopper, said control element being movable upwardly to a position uncovering said opening for the flow of filler material therethrough and downwardly to a position for pressing said material between the elements of said unit, and means in said hopper engaging said control element to limit upward movement of said control element.

4. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, said support adapted to position the unit with the space between surface elements thereof below and in registration with said bottom hopper opening, a vertically movable control element snugly fitting said opening and normally arranged therein to prevent the flow through said opening of filler material in said hopper, said control element being movable upwardly to a position uncovering said opening for the flow of filler material therethrough and downwardly to a position for pressing said material between the elements of said unit, means in said hopper engaging said control element to limit upward movement of said control element, and lever means for effecting movement of said control element between its two positions.

5. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, means adjacent said support for positioning a unit on said support with the space in said unit to be filled in vertical alignment with said opening, and a control element snugly fitting said opening and normally closing the same, said control element being mounted for movement between an upper position uncovering said opening for the flow therethrough of material in said hopper and a lower position engaging the material dropped in said space of the unit to press the filler material into such space.

6. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a support for the unit, a hopper over said support having a bottom opening, means adjacent said support for positioning a unit on said support with the space in said unit to be filled in vertical alignment with said opening, a control element snugly fitting said opening and normally closing the same, said control element being mounted for movement between an upper position uncovering said opening for the flow therethrough of material in said hopper and a lower position engaging the material dropped in said space of the unit to press the filler material into such space, lever means for moving said control element between its two positions, and means for limiting upward movement of said control element to said upper position.

7. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a vertically movable platen on which the unit is adapted to be arranged, a hopper mounted above above said platen and having a bottom provided with an opening corresponding in shape and size to a space between the surface elements of said unit to be filled with the filler material, means for moving said platen upwardly to move the unit into proximity to the bottom of said hopper, and a control element fitting and vertically slidable in said opening and normally closing the same, said control element being movable upwardly to a position uncovering said opening for the flow of material

downwardly therethrough, and being movable downwardly through said opening to a position engaging the filler material in said space between the surface elements of said unit to press the material downwardly in such space.

8. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a vertically movable platen on which the unit is adapted to be arranged, a hopper mounted above said platen and having a bottom provided with an opening corresponding in shape and size to a space between the surface elements of said unit to be filled with the filler material, means for moving said platen upwardly to move the unit into proximity to the bottom of said hopper, a control element fitting and vertically slidable in said opening and normally closing the same, said control element being movable upwardly to a position uncovering said opening for the flow of material downwardly therethrough, and being movable downwardly through said opening to a position engaging the filler material in said space between the surface elements of said unit to press the material downwardly in such space, means adjacent said platen engageable with edges of a unit of predetermined form to position the unit with said space thereof in vertical registration with the opening in the bottom of said hopper.

9. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a vertically movable platen on which the unit is adapted to be arranged, a hopper mounted above said platen and having a bottom provided with an opening corresponding in shape and size to a space between the surface elements of said unit to be filled with the filler material, means for moving said platen upwardly to move the unit into proximity to the bottom of said hopper, a control element fitting and vertically slidable in said opening and normally closing the same, said control element being movable upwardly to a position uncovering said opening for the flow of material downwardly therethrough, and being movable downwardly through said opening to a position engaging the filler material in said space between the surface elements of said unit to press the material downwardly in such space, means for effecting movement of said control element between its two positions, and means in said hopper engageable with said control element for limiting its upward movement to said first-named position.

10. Apparatus for applying filler material in a space between surface elements of a building unit, comprising a vertically movable platen on which the unit is adapted to be arranged, a hopper mounted above said platen and having a bottom provided with an opening corresponding in shape and size to a space between the surface elements of said unit to be filled with the filler material, means for moving said platen upwardly to move the unit into proximity to the bottom of said hopper, a control element fitting and vertically slidable in said opening and normally closing the same, said control element being movable upwardly to a position uncovering said opening for the flow of material downwardly therethrough, and being movable downwardly through said opening to a position engaging the filler material in said space between the surface elements of said unit to press the material downwardly in such space, means adjacent said platen engageable with edges of a unit of predetermined form to position the unit with said space thereof in vertical registration with the opening in the bottom of said hopper, means for effecting movement of said control element between its two positions, and means in said hopper engageable with said control element for limiting its upward movement to said first-named position.

11. Apparatus for applying filler material in grooves between surface elements of a building unit, comprising a horizontal platen mounted for vertical movement, a hopper arranged above said platen and having a horizontal bottom provided with slots corresponding in size and arrangement to the grooves between the surface elements of the unit, a grid in said hopper formed of bars corresponding in shape and size to said slots to fit therein and normally close said slots to prevent the flow of filler material downwardly therethrough, said grid being vertically movable to an upper position uncovering said slots for the flow of filler material therethrough and to a lower position closing said slots and extending beneath the bottom of said hopper to engage and compress the filler material in the grooves of the unit, yokes connected to said bottom of said hopper and straddling certain of the bars of said grid to limit upward movement of the latter to said upper position, and a lever for effecting vertical movement of said grid.

12. Apparatus for applying filler material in grooves between surface elements of a building unit, comprising a horizontal platen mounted for vertical movement, a hopper arranged above said platen and having a horizontal bottom provided with slots corresponding in size and arrangement to the grooves between the surface elements of the unit, a grid in said hopper formed of bars corresponding in shape and size to said slots to fit therein and normally close said slots to prevent the flow of filler material downwardly therethrough, said grid being vertically movable to an upper position uncovering said slots for the flow of filler material therethrough and to a lower position closing said slots and extending beneath the bottom of said hopper to engage and compress the filler material in the grooves of the unit, yokes connected to said bottom of said hopper and straddling certain of the bars of said grid to limit upward movement of the latter to said upper position, and a lever for effecting vertical movement of said grid, certain of said slots continuously surrounding a portion of the bottom of said hopper whereby such portion is wholly severed from the remaining portions of said bottom, certain of said yokes connecting such severed portions of said bottom to other portions thereof to support such severed portion in the plane of the remaining portions of said bottom.

13. Apparatus for applying filler material in grooves between surface elements of a building unit, comprising a horizontal platen mounted for vertical movement, a hopper arranged above said platen and having a horizontal bottom provided with slots corresponding in size and arrangement to the grooves between the surface elements of the unit, a grid in said hopper formed of bars corresponding in shape and size to said slots to fit therein and normally close said slots to prevent the flow of filler material downwardly therethrough, said grid being vertically movable to an upper position uncovering said slots for the flow of filler material therethrough and to a lower position closing said slots and extending beneath the bottom of said hopper to engage and compress the filler material in the grooves of the unit.

yokes connected to said bottom of said hopper and straddling certain of the bars of said grid to limit upward movement of the latter to said upper position, a lever for effecting vertical movement of said grid, means adjacent said platen for positioning thereon a predetermined form of unit in such position that said grooves thereof are vertically aligned with said slots, and a treadle for moving said platen upwardly to move the unit into proximity to the bottom of said hopper.

14. Apparatus for applying filler material in grooves between surface elements of a building unit, comprising a horizontal platen mounted for vertical movement, a hopper arranged above said platen and having a horizontal bottom provided with slots corresponding in size and arrangement to the grooves between the surface elements of the unit, a grid in said hopper formed of bars corresponding in shape and size to said slots to fit therein and normally close said slots to prevent the flow of filler material downwardly therethrough, said grid being vertically movable to an upper position uncovering said slots for the flow of filler material therethrough and to a lower position closing said slots and extending beneath the bottom of said hopper to engage and compress the filler material in the grooves of the unit, yokes connected to said bottom of said hopper and straddling certain of the bars of said grid to limit upward movement of the latter to said upper position, a lever for effecting vertical movement of said grid, certain of said slots continuously surrounding a portion of the bottom of said hopper whereby such portion is wholly severed from the remaining portions of said bottom, certain of said yokes connecting such severed portions of said bottom to other portions thereof to support such severed portion in the plane of the remaining portions of said bottom, means adjacent said platen for positioning thereon a predetermined form of unit in such position that said grooves thereof are vertically aligned with said slots, and a treadle for moving said platen upwardly to move the unit into proximity to the bottom of said hopper.

15. Apparatus for applying filler material in grooves between surface elements of a building unit, comprising a horizontal platen mounted for vertical movement, a hopper arranged above said platen and having a horizontal bottom provided with slots corresponding in size and arrangement to the grooves between the surface elements of the unit, a grid in said hopper formed of bars corresponding in shape and size to said slots to fit therein and normally close said slots to prevent the flow of filler material downwardly therethrough, said grid being vertically movable to an upper position uncovering said slots for the flow of filler material therethrough and to a lower position closing said slots and extending beneath the bottom of said hopper to engage and compress the filler material in the grooves of the unit, yokes connected to said bottom of said hopper and straddling certain of the bars of said grid to limit upward movement of the latter to said upper position, a lever for effecting vertical movement of said grid, cushion blocks fixed against the bottom of said hopper and having spaces therebetween of the same width as and registering with the slots in the bottom of said hopper, and means for moving said platen upwardly to engage the facing elements of said unit against said blocks and holding the unit in such position during movement of said grid to its lower position.

JACK C. DAVIS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,505,613	Weston	Aug. 19, 1924