Feb. 11, 1958 W. H. HUFFMAN 2,822,841

METHOD AND APPARATUS FOR ASSEMBLING WALLS

Filed March 29, 1955 2 Sheets-Sheet 1

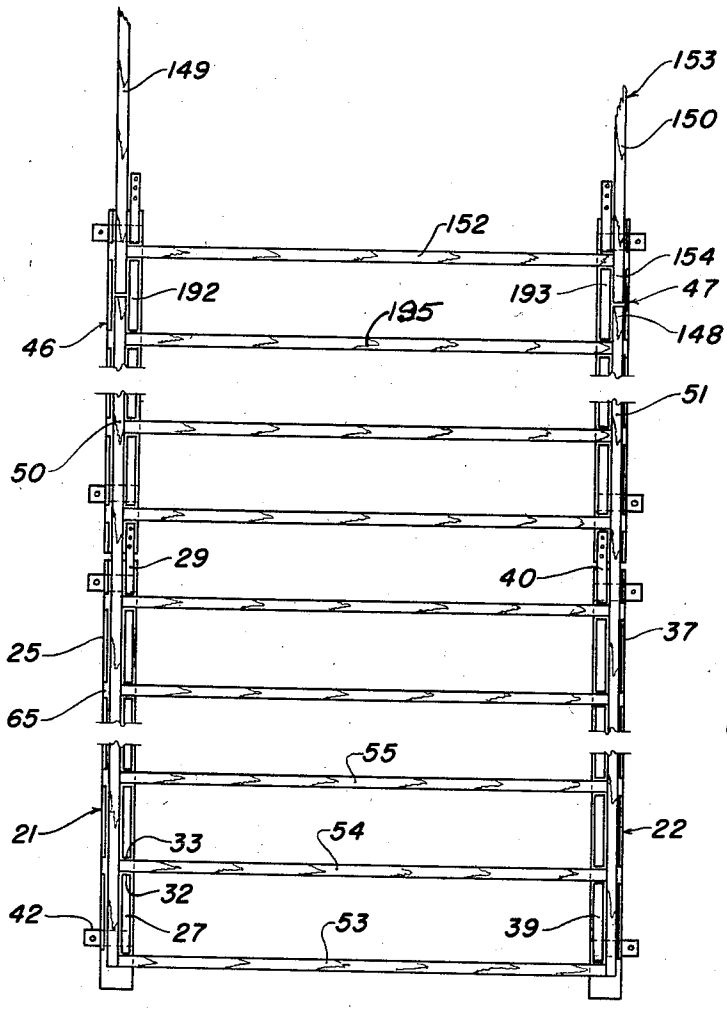


Fig. 1

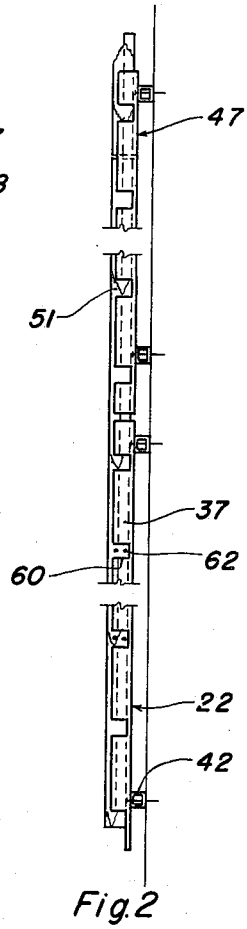


Fig. 2

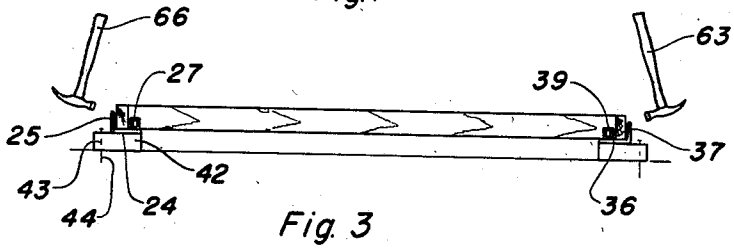


Fig. 3

INVENTOR.
WILLIAM H. HUFFMAN
BY
Schmieding and Fultz
ATTORNEYS

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METHOD AND APPARATUS FOR ASSEMBLING WALLS

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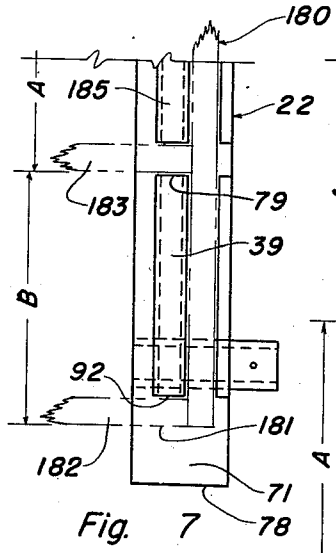


Fig. 7

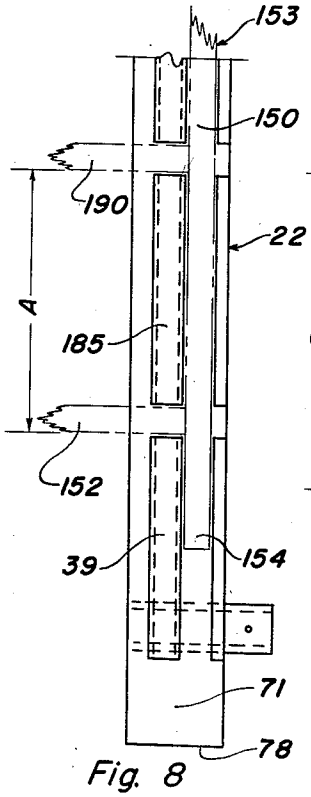


Fig. 8

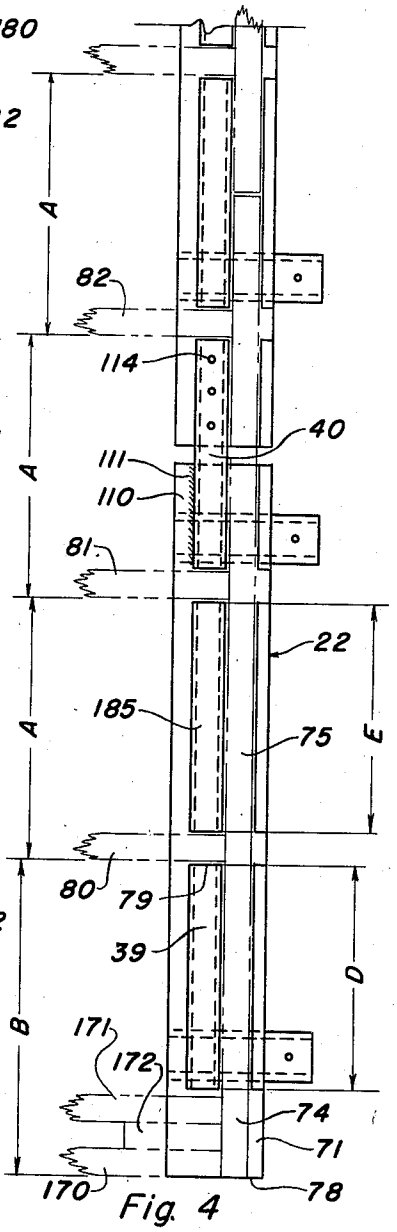


Fig. 4

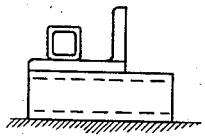


Fig. 6

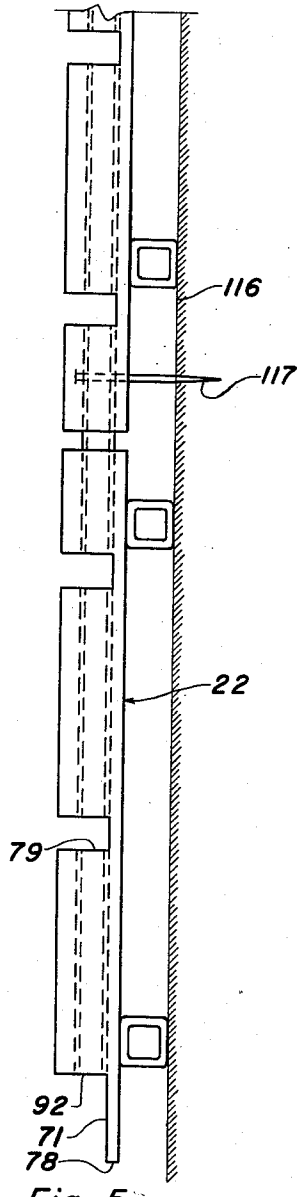


Fig. 5

INVENTOR.
WILLIAM H. HUFFMAN

BY

Schmieding and Tultz

ATTORNEYS

United States Patent Office

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METHOD AND APPARATUS FOR ASSEMBLING WALLS

William H. Huffman, Newark, Ohio

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6 Claims. (Cl. 144—288)

The present invention relates to building construction and more particularly to method and apparatus for assembling wall structures prior to erection.

It is an object of the present invention to provide an apparatus for assembling walls wherein the plate members and stud members of the wall are supported and accurately located without the need for a toenailing operation and without the need of the time consuming steel tape and square. The apparatus not only supports and aligns the structural members but provides lateral support against the impact of driving nails in securing the members together while in position in the apparatus.

It is another object of the present invention to provide apparatus of the type described which is lightweight, readily portable and adapted to be attached to a subfloor at the building site whereby wall structures can be readily and accurately assembled without the need for time consuming toenailing and measuring operations.

It is another object of the present invention to provide apparatus of the type described which is adapted to be formed of a plurality of sections which can be readily and accurately joined end to end on a rough sub-floor at the building site whereby wall structures of any desired length can be assembled depending on the number of sections which are utilized.

It is another object of the present invention to provide apparatus of the type described which is adapted to support and align the plate members and the stud members of a wall structure whereby the plate members, at one end thereof, can be readily and accurately located with a predetermined amount of extension beyond the end stud member. Such extension of the plate member provides means for forming a lapped corner junction between the wall being assembled and the next adjoining wall.

It is still another object of the present invention to provide method and apparatus of the type described whereby members of a wall panel can be readily located and assembled on a supporting structure, with such structure being adapted, at one end thereof, to form an end wall structure of proper construction to form a corner junction with an adjoining wall, and with the other end of the supporting structure being adapted to locate, and support for fastening, the plate members and end stud member of a next adjoining wall panel. After such end stud member is fastened to start the second wall panel, the first wall panel is removed from the supporting structure and the plate members of the second wall panel, with the end stud member properly located, are repositioned in the supporting structure whereby the balance of the stud members for the second wall panel can be readily located and supported for attachment to the plate members to complete such second wall panel.

It is still another object of the present invention to provide apparatus of the type described which is adapted to support and align plate members and stud members of the wall structure, with such apparatus being provided with a plurality of longitudinally spaced guide means for

the stud members. Such guide means are adapted to provide the proper stud spacing at the starting end of the wall to compensate for the thickness of the siding to be applied to the inner side of the wall. In addition, after the starting end of the wall has been assembled, with the desired stud spacing and plate member extension, the wall members can be lifted and disposed with a new portion of the plate members resting on the supporting apparatus whereby additional stud members can be secured between such new portion of the plate members. Hence a relatively long wall structure can be constructed by the use of only a relatively short supporting apparatus.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of embodiment is shown.

In the drawings:

Figure 1 is a top plan view of an apparatus constructed according to the present invention and having typical wall structure supported thereon;

Figure 2 is a side elevational view corresponding to Figure 1;

Figure 3 is an end elevational view corresponding to Figure 1;

Figure 4 is a partial top plan view showing the end construction of the apparatus of the preceding figures with the end portion of a wall structure in place on the apparatus;

Figure 5 is a partial side elevational view corresponding to Figure 4;

Figure 6 is an end elevational view corresponding to Figure 4;

Figure 7 is another partial top plan view showing the end structure of the apparatus illustrated in Figure 4, with the view of Figure 7 showing a second wall structure supported by the apparatus, with such second wall structure having an end construction different from the wall structure of Figure 4; and

Figure 8 is another view of the end structure of the apparatus of Figure 4 showing a third wall structure supported by the apparatus, with such second wall structure having an end construction different from the wall structure of Figure 4.

Referring next to the drawings, Figure 1 illustrates an apparatus constructed according to the present invention which apparatus includes a left support member **21** and a right support member **22**. Support member **21** includes a base member **24** and an upwardly extending flange means **25**. Support member **21** further includes a plurality of guide means such as are indicated at **27** and **29**, with each adjacent pair of guide means forming a pair of stud-engaging shoulders **32** and **33**. In a like manner, right support member **22** is provided with the base portion **36**, an upwardly extending flange means **37**, and a plurality of guide means such as the one illustrated at **39** and **40**.

Support member **21** is provided with a plurality of mounting means **42** which includes hole means **43** adapted to receive a fastening, such as a nail **44**, which is extended through the hole means **43** and driven down into the rough subfloor at the building site. A second pair of support members, indicated generally at **46** and **47**, are joined end to end with the first pair of support members **21** and **22**, in a manner later to be described, whereby the total supporting apparatus is composed of a plurality of lightweight sections which can be readily transported and assembled.

Referring again to Figure 1, the left support members **21** and **46** are adapted to receive a plate member **50**, and the right support members **22** and **47** support a spaced parallel plate member **51** in a similar manner. A plurality of stud members, such as are indicated at **53**, **54**

and 55, are extended transversely between the plate members 50 and 51, with the left end of the stud members engaging the inner surface of the plate 50 and with the right end of the stud member engaging the inner surface of the other plate member 51.

Referring next to Figure 2, it is seen that the flange means 37 is provided with a plurality of cutout portions or openings 60 which expose a plurality of nailing surfaces along the outer surface of the plate member 51. Hence nails 62 can be readily driven through the plate 51 and into the end of the stud member in the manner illustrated by the hammer 63 in Figure 3. In a like manner, the upwardly extending flange means 25, on the support member 21, is provided with a plurality of openings 65, as seen in Figure 1, whereby nails can be driven through the left plate member 50 and into the left ends of the stud members in the manner illustrated by the hammer 66 in Figure 3.

Reference is next made to Figures 4, 5 and 6 which illustrate the end portion of support member 22. As is best seen in Figure 5, structural member 22 is provided with an extended portion 71 which extends a predetermined distance B beyond the shoulder 79 on guide means 39 and hence a predetermined distance beyond stud member 80. The purpose of providing the extension 71 of a predetermined length is to furnish the worker with means for readily obtaining a predetermined length of plate extensions such as are illustrated by the plate extension 74 on the plate member 75 illustrated in Figure 4. With this arrangement, the end stud members 170 and 171, and the spacer 172, can be accurately located and secured in place to provide a lap portion at a corner junction when the wall is erected and fastened to an adjoining wall.

With further reference to Figure 4, it will be noted that the extension 71 forms a shoulder 78 which provides means for locating the outer face of stud 170 a distance B from the shoulder 79 on guide means 39 whereby the proper location of stud 170 is readily established.

Reference is next made to Figure 7 which illustrates the same right support member 22 of Figure 4, but in Figure 7, such support member is being used to support a different wall structure 180 adapted to butt join with the wall structure of Figure 4 at a corner junction whereby the face 181 of end stud member 182 butts up against the studs 170, 171 and spacer 172. As seen in Figure 7, the end stud member 182 is spaced a distance C from the second stud member 183. The next stud member is, of course, spaced a distance A from the second stud member, and each succeeding stud member is spaced the same distance A from the preceding stud member. Hence, distance A represents the conventional stud spacing which is generally sixteen inches according to present building practice. The first and second stud members 182 and 183, however, are spaced a different distance C, as determined by the shoulder 92 on the guide means 39 which provides a locating means for positioning end stud member 182 when a wall structure type 180 is being fabricated. It will be understood that the length D of the end guide means 39 is a specific length different from the length E of the next guide means 185 in order to properly locate the end stud member 182. Hence it is seen that edge 78 serves to locate the end stud members 170 and 171 when a wall type of Figure 4 is being assembled, and shoulder 92 serves to locate end stud member 182 when the wall type of Figure 7 is being assembled.

It will of course be understood that although equal stud spacings are illustrated in the drawings, for those stud spacings other than the end one, stud locating means can be provided at any odd locations along the support members. For example, such provision can be made for readily locating a stud member for cornering a partition at the junction of the partition with the wall structure.

Reference is next made to the readily attachable and detachable fastening means provided for adjoining ends of two support members lying on the same side of the apparatus. Such fastening means is best seen in Figures 4 and 5 and comprises an extended member 40 which is secured to a surface 110 on the end of support member 22 by suitable fastening means such as the weld indicated at 111. The extended member 40 laps over the next adjacent support member, and the extended member 40 and the underlying portion of the adjacent support member are provided with aligned hole means 114 adapted to receive suitable fastenings, such as nails 117, which are driven down into the rough subfloor 116. Hence the fastening means provides structure for quickly and accurately aligning sections of the apparatus and for securing the apparatus to the rough subflooring. Moreover, the extended member 40 also serves to provide one shoulder at the guide means for stud member 82 in the manner illustrated in Figure 4.

Reference is next made to Figures 1 and 8 of the drawing for the purpose of describing the present method for starting and assembling a second adjoining wall panel 153, while the first wall panel is still in the supporting apparatus 22. As seen in Figure 1, the plate members 50 and 51 have their ends disposed somewhere along the guide means 192 and 193. After the end wall panel is assembled, plate members 149 and 150 are positioned as shown in Figure 1 and the first stud member 152, for the second wall panel 153, is nailed in place. Hence, the end extensions 154 on the plate members of the second wall panel will butt against the end portions 148 of the plate members of the first wall panel whereby the stud members 152 and 195 will be properly spaced, a distance A, when the adjoining plate members of the two wall panels are toe-nailed together in erecting the two wall panels in co-planar relationship after both the panels have been pre-assembled and erected.

The plate members 149 and 150, with the end stud member 152 secured between them, provide the started second wall panel which is next lifted and repositioned in the supporting structure 22 in the manner illustrated in Figure 8. The next stud member 190, and each succeeding stud member, not illustrated, are next positioned and fastened in the manner previously described to complete the second wall panel 153. Hence, it is seen that second wall panel 153 is formed with plate member extensions 154 of the proper length, or lengths, to combine with plate member extensions 148, on the first wall panel, to provide the proper stud spacing A at the junction when the adjoining plate members are toe-nailed together as the wall panels are erected.

In summary, it is seen that the present invention provides novel apparatus for rapidly and accurately assembling wall structures prior to erection. The apparatus is composed of readily joinable and alignable sections whereby the apparatus is made readily portable as well as flexible as to the total length of supporting structure which may be utilized. Moreover, according to the present invention, the method and apparatus provide means for readily assembling a plurality of wall structure types, having different end constructions with different stud member spacings thereat, whereby a lap type wall end, a butt type wall end, and an end construction for joining two co-planar wall panels can all be readily aligned and assembled with a single apparatus.

While the form of embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

I claim:

1. An apparatus for assembling prefabricated walls comprising, in combination, a pair of spaced parallel support members forming a base for supporting spaced parallel plate members of said wall; a plurality of guide means on each of said support members, said support

members being arranged to underlie opposite ends of a plurality of spaced stud members extended transversely to said plate members, each of said guide means serving to locate an end of one of said stud members longitudinally along one of said plate members; a flange on each of said support members extending longitudinally and upwardly thereof and adapted to engage an outer side of one of said plate members to provide lateral support when the other of said plate members is being nailed to said stud members, said flange including spaced openings to expose nail-receiving surfaces on said plate member when nailing said plate member to the ends of said studs, each of said nail-receiving surfaces being aligned with one of said guide means, and means for mounting each of said support members to an underlying surface.

2. An apparatus for assembling prefabricated walls comprising, in combination, a support member forming a base surface for underlying support of a plate member of said wall; a flange on said support member extending longitudinally and upwardly thereof and adapted to engage a side of said plate member, said flange including openings at longitudinally spaced intervals; and means carried on said support member and extended upwardly from said base surface, said means being spaced from said flange to form a plate guide of U-shaped cross-section for receiving said plate member therebetween, and said means also forming a plurality of pairs of spaced guide shoulders, a pair of said guide shoulders being located at each of said openings for supporting the end of a stud member in engagement with said plate member and in alignment with one of said openings.

3. An apparatus for assembling prefabricated walls comprising, in combination, a plurality of axially aligned support members forming a base surface for underlying support of a plate member of said wall; a flange on each of said support members extending longitudinally and upwardly thereof and adapted to engage a side of said plate member, said flange including openings at longitudinally spaced intervals; means carried on each of said support members and extended upwardly from said base surface, said means being spaced from said flange to form a plate guide of U-shaped cross section for receiving said plate member therebetween, and said means also forming a plurality of pairs of spaced guide shoulders, a pair of said guide shoulders being located at each of said openings for supporting the end of a stud member in engagement with said plate member and in alignment with one of said openings; and connecting means on an end of one of said support members for securing same to the end of the next adjacent support member.

4. An apparatus for assembling prefabricated walls comprising, in combination, a plurality of axially aligned support members forming a base surface for underlying support of a plate member of said wall; a flange on each of said support members extending longitudinally and upwardly thereof and adapted to engage a side of said plate member, said flange including openings at longitudinally spaced intervals; means carried on each of said support members and extended upwardly from said base surface, said means being spaced from said flange to form a plate guide of U-shaped cross-section for receiving said plate member therebetween, and said means forming a plurality of pairs of spaced guide shoulders, a pair of said guide shoulders being located at each of said openings for supporting the end of a stud member in engagement with said plate member and in alignment with one of said openings; and connecting means on an end of one of said support members for securing same to the end of the next adjacent support member, said connecting means including a portion extended from said end and in lapped relationship with a portion of said next adjacent support member, said lapped portions being provided with aligned holes for receiving fastenings extended through said lapped portions and into a surface underlying said members.

5. An apparatus for assembling prefabricated walls comprising, in combination, a plurality of support means disposed end to end, each of said support means including spaced parallel support members each of which includes a surface for underlying support of a plate member of said wall whereby a pair of plate members is supported in wall-forming disposition; guide means carried on each of said support members and extended upwardly from said base surface along the inner side of a plate member supported thereon, said means forming spaced stud-engaging shoulders adapted to position an end of a stud member longitudinally along said plate member; flange means on each of said support members and extended upwardly along the outer side of a plate member supported thereon, said flange means being provided with a plurality of longitudinally spaced openings each of which is aligned with a pair of said spaced shoulders whereby said flange means exposes a nail-receiving surface when nailing one of said plate members to said stud member and also provides lateral support when nailing the other of said plate members to said stud member; and connecting means for joining an end of a support member on one of said support means to an axially aligned support member on the next adjacent support means, said connecting means being arranged to locate an end pair of said stud-engaging shoulders on one of said support means relative to an end pair of said stud-engaging shoulders on said next adjacent support means to provide a stud spacing equal to the stud spacing provided by the other of said stud-engaging shoulders.

6. The steps in the method of assembling prefabricated building walls, which method comprises disposing a pair of plate members for a wall panel in spaced relationship in supporting means provided with stud member locating means disposed at longitudinally spaced intervals along the supporting means; disposing a plurality of stud members in said locating means whereby said stud members extend transversely between said plate members with the ends of said stud members engaging said plate members; locating an end stud member of said plurality by a first end stud locating means on said supporting means to position said end stud a certain distance from the next adjacent stud to provide a wall panel end construction adapted to form a corner junction with a different wall panel end construction; securing each stud member to the plate members at each junction; removing said assembled members from said supporting means; disposing a second pair of plate members for a second wall panel in spaced relationship in said supporting means; disposing a second plurality of stud members in said locating means whereby said stud members extend transversely between said second pair of plate members; locating an end stud member of said second plurality by a second end stud locating means on said supporting means to position said end stud a certain distance from the next adjacent stud, said second mentioned certain distance being different from said first mentioned certain distance to provide said different wall panel end construction; and joining said first mentioned wall panel end construction to said second mentioned different wall panel end construction to form said corner junction between said two wall panels.

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