Sept. 16, 1958 A. A. ASTORGA 2,851,875

STEPPED WALL CONSTRUCTION

Filed Feb. 23, 1956

Fig. 1

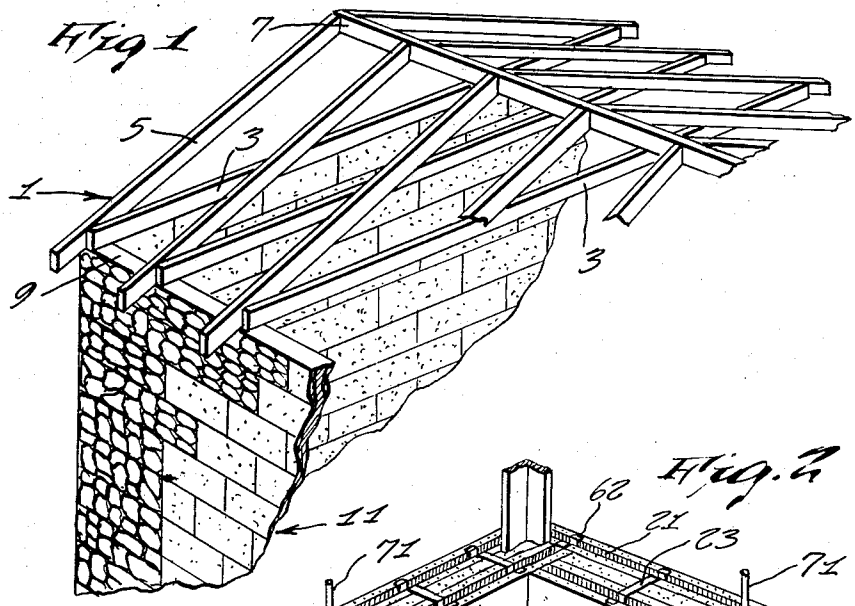


Fig. 2

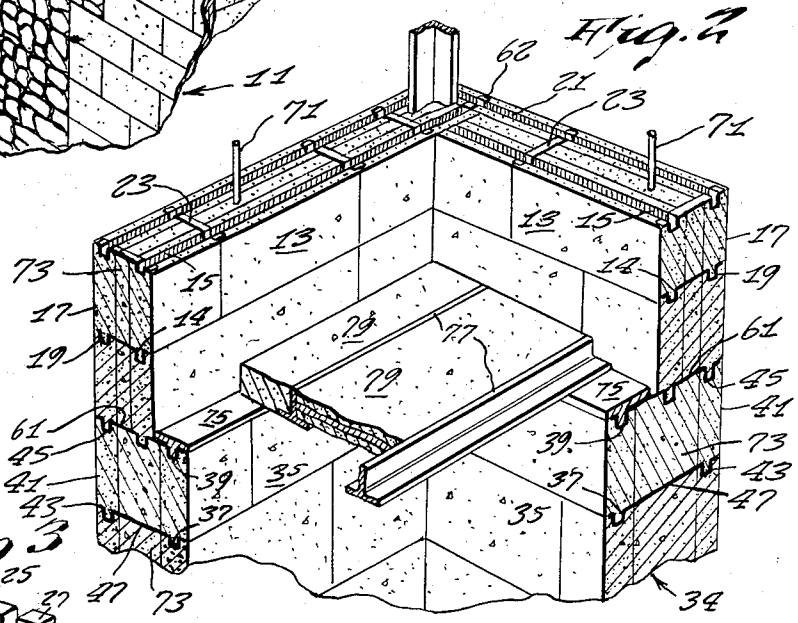


Fig. 3

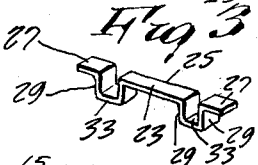


Fig. 4

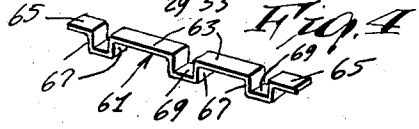


Fig. 5

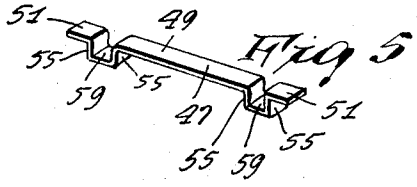
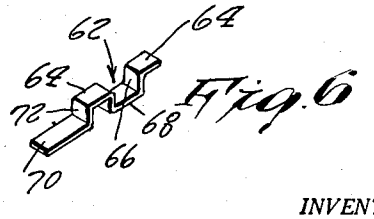


Fig. 6



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STEPPED WALL CONSTRUCTION

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1 Claim. (Cl. 72—30)

This invention relates to building construction and more particularly to securing means for use in connection with the fabrication of wall sections.

Generally, this invention contemplates the fabrication of a compound wall structure consisting of outer and inner facing members that are used as forms between which a plastic material is poured and allowed to set, after which the facing members combine with the set material to form an integral wall structure. Spacing elements that are used to assemble the facing members further cooperate to integrally connect the several portions and further reinforce the wall structure.

An object of this invention, therefore, is to provide a novel wall assembly which is easily fabricated and which has great strength.

Another object of this invention is to provide a limited number of novel spaced elements that may be used to construct a variety of wall shapes and which are operating to integrally connect a plurality of compound wall sections together.

A still further object of this invention is to provide reinforced wall and floor construction that may be easily fabricated.

Further objects, advantages and features of the present invention will become apparent from a consideration of the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a partially completed building constructed in accordance with this invention, with parts broken away to show the details thereof;

Figure 2 is an enlarged perspective view of a portion of the building shown in Figure 1, showing additional details of the wall and floor sections and the spaced elements used in conjunction therewith;

Figure 3 is an enlarged perspective view of a spaced element used to connect a pair or inner and outer wall facing members;

Figure 4 is a view similar to Figure 3, showing a spaced element used to connect two pairs of inner and outer wall facing members, the spacing of one pair of members being greater than the other pair of members;

Figure 5 is a view similar to Figure 3, showing a spaced element used to connect a pair of more widely spaced inner and outer wall facing members; and

Figure 6 is a view similar to Figure 3, showing a corner connecting element for perpendicularly related wall facing members.

Referring now to Figure 1 of the drawing, a roof framework **1** that is constructed of the usual tie-beams **3**, rafters **5**, ridge piece **7**, and wall plate **9**, is shown to be supported on a wall **11** constructed in accordance with this invention.

As shown more clearly in Figure 2, the upper wall section is constructed of inner facing members **13**, each of which has a tongue **14** and groove **15** for interlocking engagement with each other, and outer facing members **17**, each of which similarly has a tongue **19** and groove **21** for interlocking engagement with each other. Each

pair of inner and outer facing members **13**, **17**, are connected to each other by one or more spacer elements **23**. Referring to Figure 3, each spacer element **23** is shown to include a main horizontal web **25** and a pair of auxiliary webs **27**, each of which is spaced from the main web **25** by a U-shaped section having vertical walls **29** joined together by a horizontal bottom web **33**. The U-shaped sections of the spacers are adapted to engage the grooves **15**, **21** of the facing members, thereby securing them in properly spaced position and are also adapted to receive the tongues **14**, **19** of the next higher row of facing members which are subsequently placed in position.

If desired, the wall section **11** may be preceded by a heavier base section **34** which may similarly be constructed of inner facing members **35** each of which has a tongue **37** and groove **39** for interlocking engagement with each other, and outer facing members **41**, each of which similarly has a tongue **43** and groove **45** for interlocking engagement with each other. Each pair of inner and outer facing members **35**, **41**, are connected to each other by one or more spaced elements **47**. As more clearly shown in Figure 5, each spacer element **47** is shown to include a main horizontal web **49** and a pair of auxiliary webs **51** each of which is spaced from the main web **49** by a U-shaped section having vertical walls **55** joined together by a horizontal bottom web **59**. The U-shaped sections of the spacers are adapted to engage the grooves **39**, **45** of the facing members, thereby securing them in properly spaced position and are also adapted to receive the tongues **37**, **43** of the next higher row of facing members that are subsequently placed in position.

A transition spacer element **61** is provided to permit the building of a narrower wall section **11** on top of a wider base section **34**, as shown in Figure 2. This transition element **61**, as is more clearly shown in Figure 4 of the drawing, includes a pair of spaced main horizontal webs **63**, and a pair of auxiliary webs **65**, each of which is spaced from the main webs **63** by a U-shaped section having vertical walls **67** joined together by a horizontal bottom web **69**. The outer U-shaped sections of the spacers are adapted to engage the grooves **39**, **45** of the base section facing members **35**, **41**, respectively. The outer U-shaped section is also adapted to engage the tongue **19** of the outer facing member **17** of the upper wall assembly **11**, whereas the middle U-shaped section is adapted to engage the tongue **14** of the inner facing member **13** of the upper wall assembly, all as clearly shown in Figure 2, whereby all wall sections are securely interlocked.

Corner clips **62**, as shown in Figure 6, are provided which have a pair of upper horizontal webs **64** connected by a U-shaped section having a pair of vertical walls **66** joined by a horizontal wall **68**. One of the webs **64** is connected to an outwardly extending web **70** by a vertical web **72**. As shown more clearly in Figure 2, the U-shaped section of the corner clip is received by the groove **21** of the outer facing member **17** and the outwardly extending web **70** is received by the groove **15** of a perpendicularly related inner facing member **13**, thereby securing the corner section together.

To provide additional rigidity, metal reinforcing rods **71** may be placed between the respective facing members to be locked in place by concrete **73** that is poured between the inner and outer facing members after the wall sections are completed, thereby also locking all of the spacer elements in place.

A floor may readily be secured at the transition level, as shown in Figure 2, by disposing the vertical web of a T-shaped member **75** within the inner U-shaped section of the transition spacer element **61**, thereby providing a metal frame on which a plurality of inverted T-shaped

stringers 77 may be supported. By then placing slabs 79 of reinforced concrete between the stringers, a sturdy floor is formed.

While this invention has been described with particular reference to the specific forms shown in the drawing, it is to be understood that such showings are for illustrative purposes only and are not to be construed as imparting limitations upon the invention, which is best defined by the claim appended hereto.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

A wall construction comprising a plurality of vertically arranged pairs of facing members, each said pair of members comprising an inner facing member and an outer facing member and each including correspondingly arranged tongue and groove portions engaging the mating portions of the next adjacent pair of members, the spacing between the lower pairs of members being greater than the spacing between the upper pairs of members, at least one transition spacer element disposed between each pair of lower members disposed immediately below each lowermost pair of upper members; each said transition spacer element comprising a pair of spaced main horizontal webs, a pair of auxiliary horizontal webs, a U-shaped section disposed between each of said main horizontal webs and said auxiliary webs engaging the grooves of said lower pair of members, one of said U-shaped sections also receiving the tongue of one of said pair of lowermost upper members, a U-shaped section disposed between said main horizontal webs receiving the tongue of the other of said pair of lowermost upper members; solid matter filling the entire space defined by all of said inner and outer members thereby locking said spacer elements and said members in position; and a T-shaped member having a vertical leg also received in the other of said U-shaped sections disposed between each of said main horizontal webs and said auxiliary webs, the horizontal web of said T-shaped member overlying said solid matter between said one of said pair of lowermost upper members and said other of said U-shaped sections and providing a step between said upper and lower members.

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