

[54] APPARATUS FOR FORMING AND
DISPLACING A PREFABRICATED
BUILDING SECTION

[76] Inventor: **Cornelis van der Lely**, 7,
Bruschenrain, Zug, Switzerland

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[51] Int. Cl. **B28b 7/22**

[58] Field of Search 249/27, 161, 162; 425/441,
425/438, 455, 404

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Primary Examiner—Robert D. Baldwin

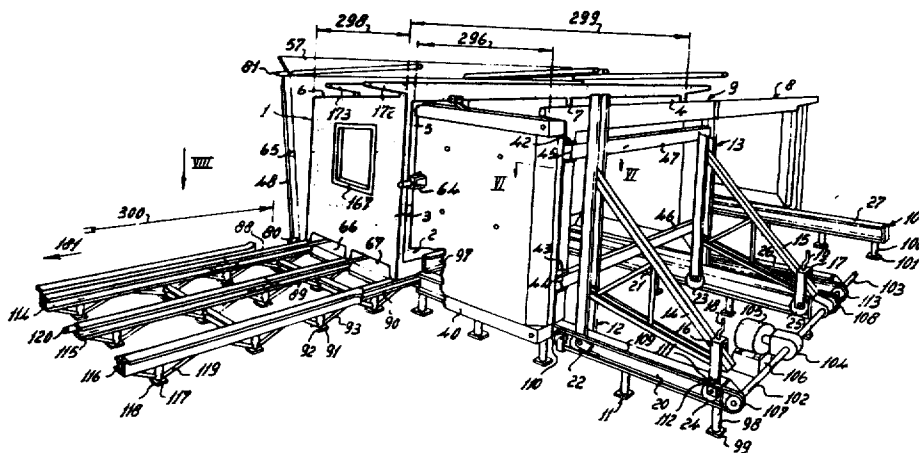
Attorney, Agent, or Firm—Mason, Mason & Albright

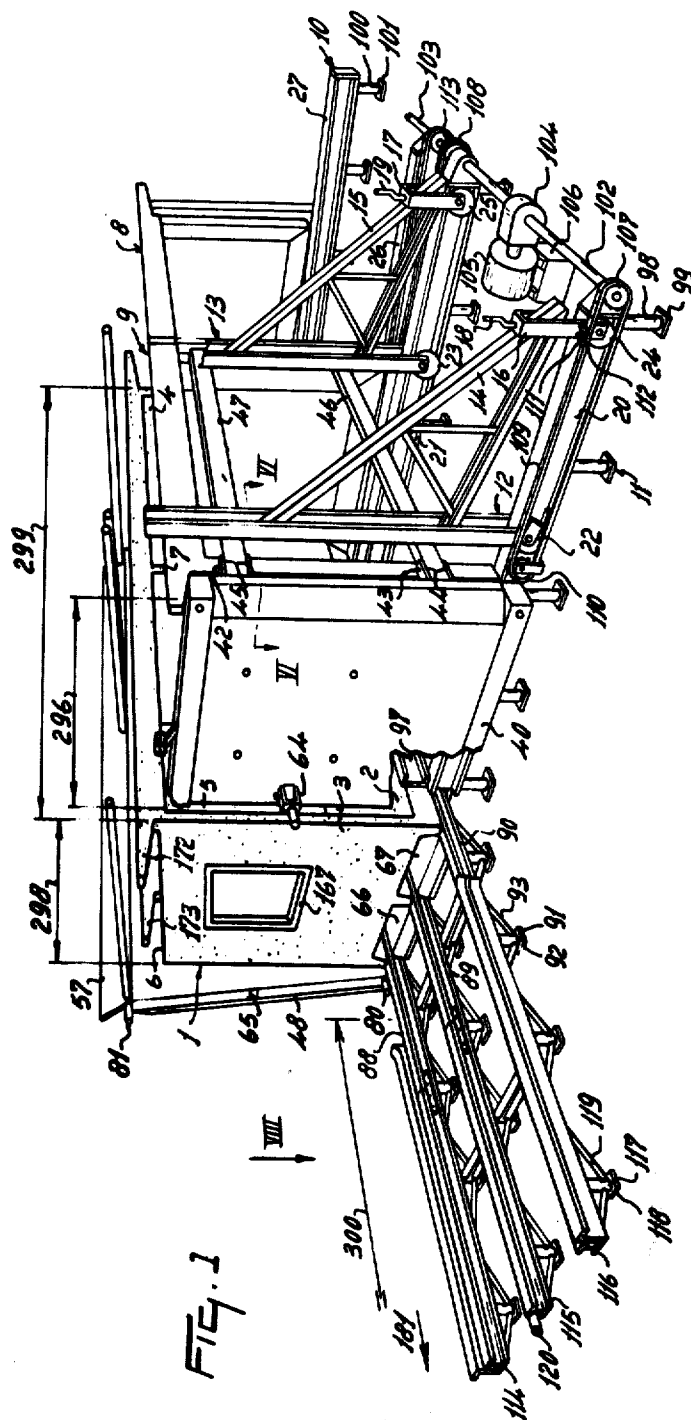
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ABSTRACT

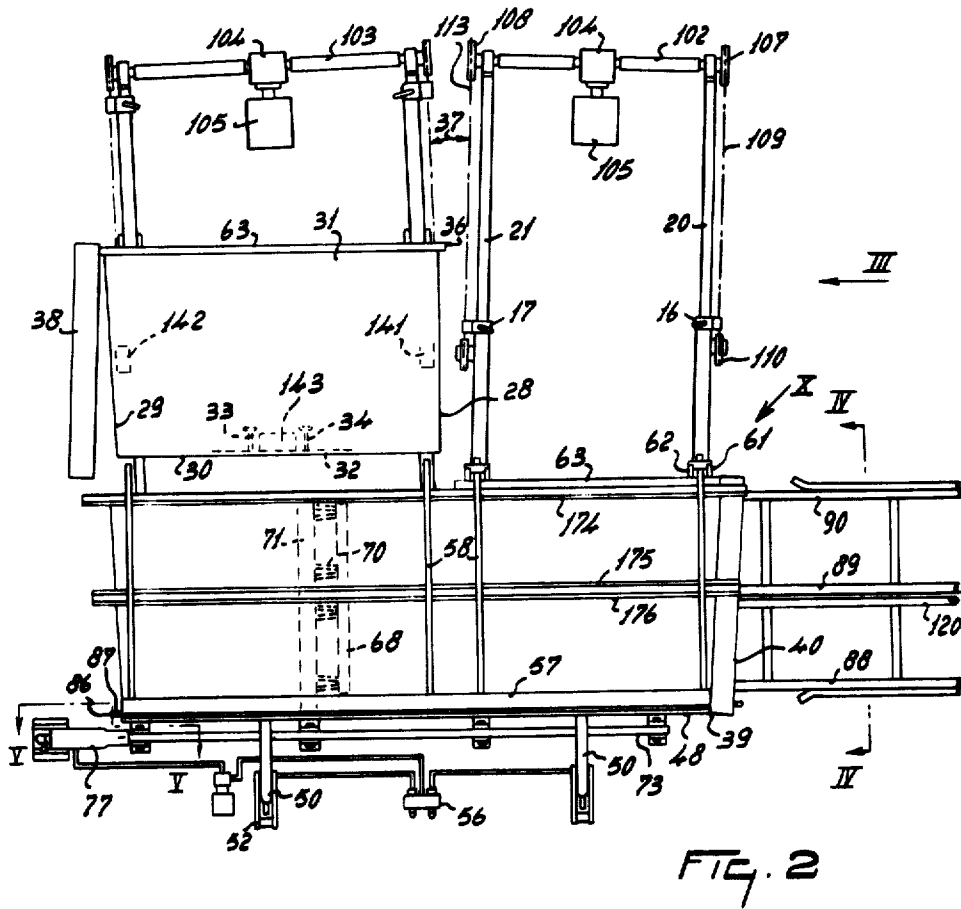
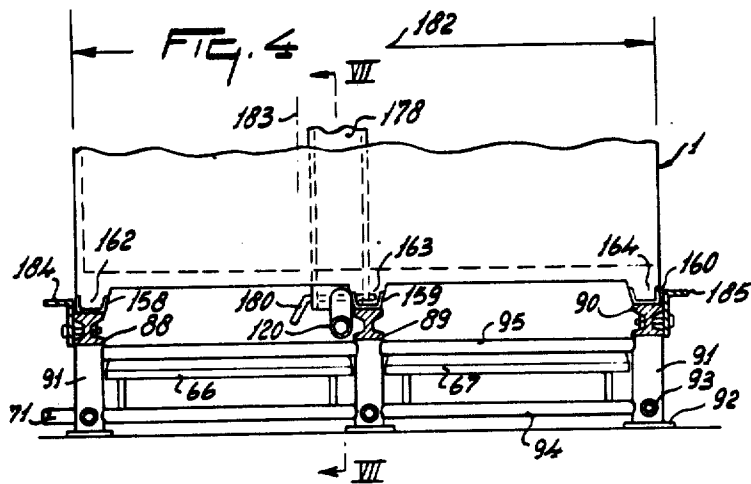
The invention relates to a device for the manufacture of a prefabricated element intended to form at least part of a building. The device comprises at least two relatively movable jigs, which can be relatively fixed so that a mold can be formed in which a building element can be made to include at least two walls at an angle to each other, or a wall and a floor and/or an upper side of a section so that the element bounds at least part of the space of the building. At least one of the jigs is displaceable as a whole and coupled with driving members that displace the jig with respect to the other jig in two relatively opposite directions so that the parts can be moved away from each other or for moving the jigs in their relative manufacturing positions.

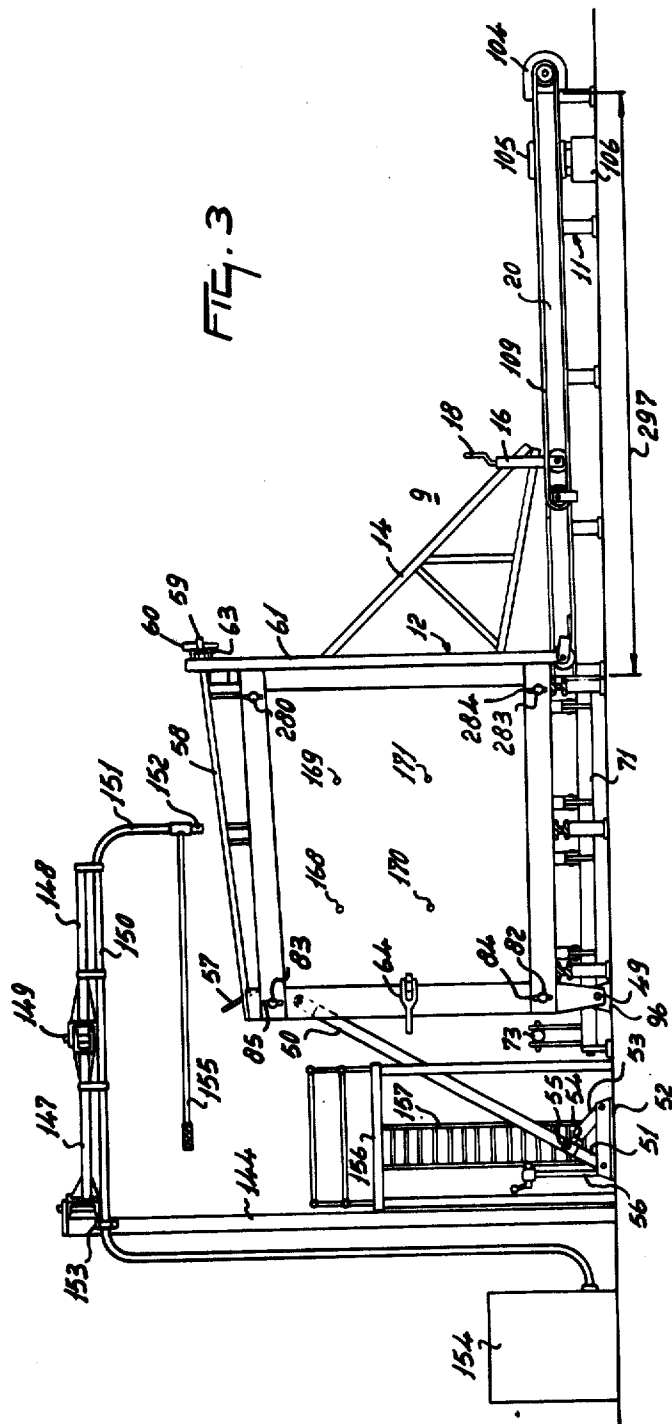
29 Claims, 23 Drawing Figures





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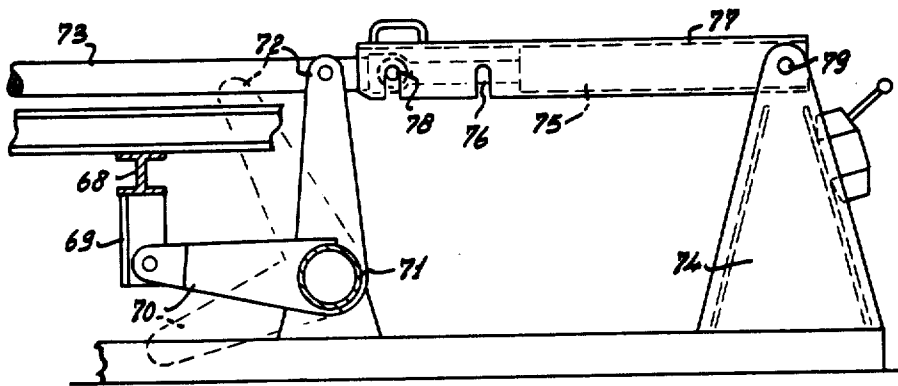


FIG. 5

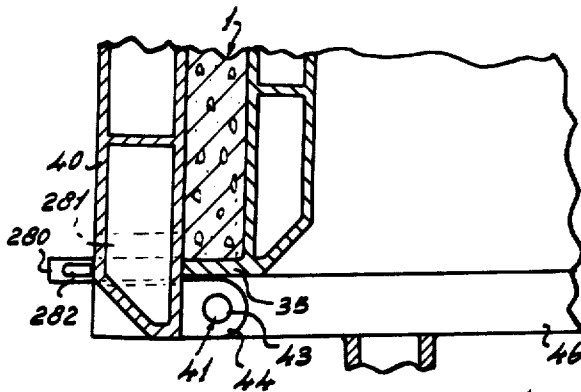


FIG. 6

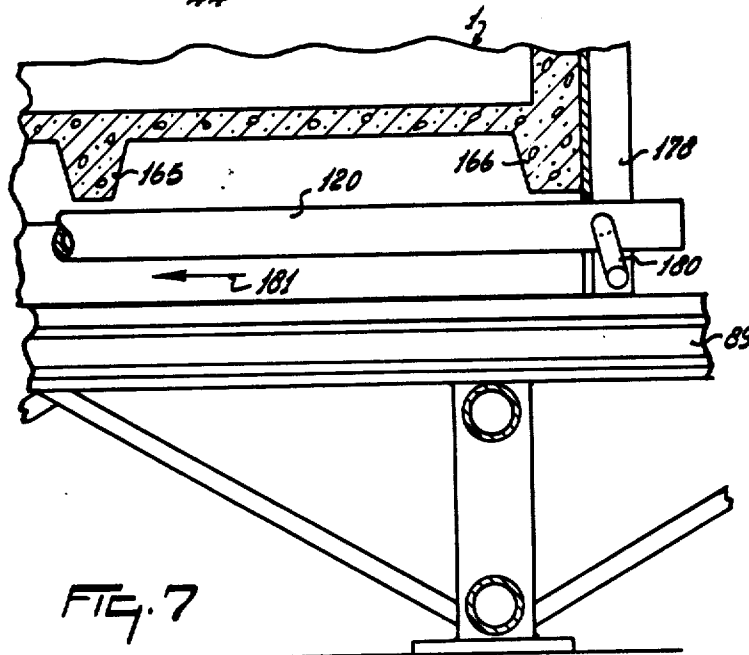
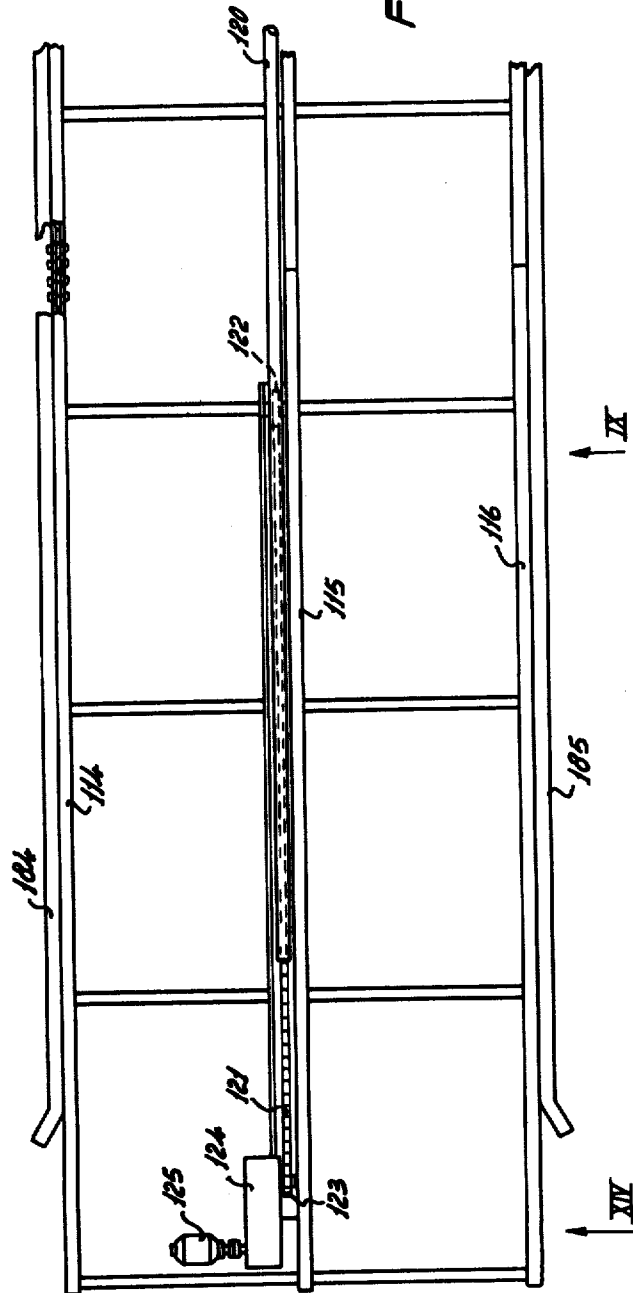
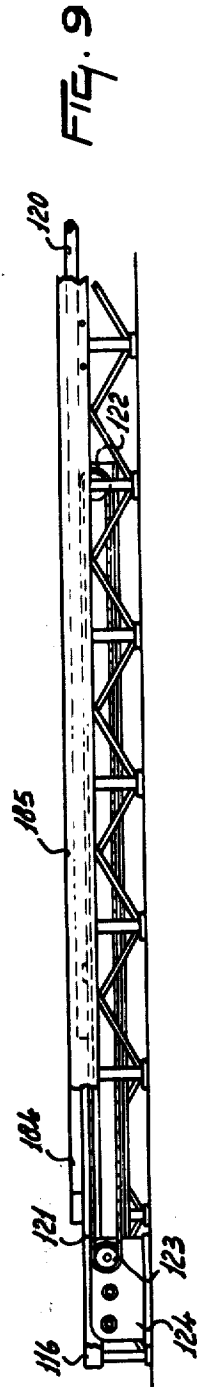
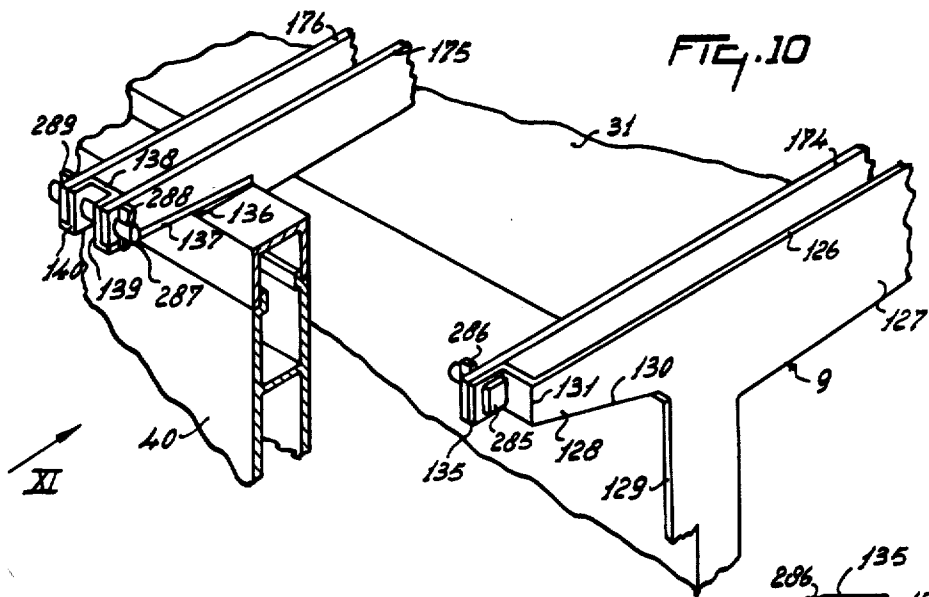


FIG. 7





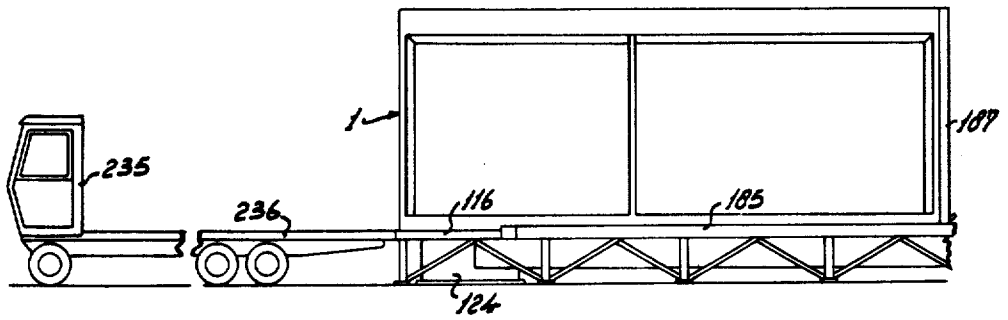


FIG. 14

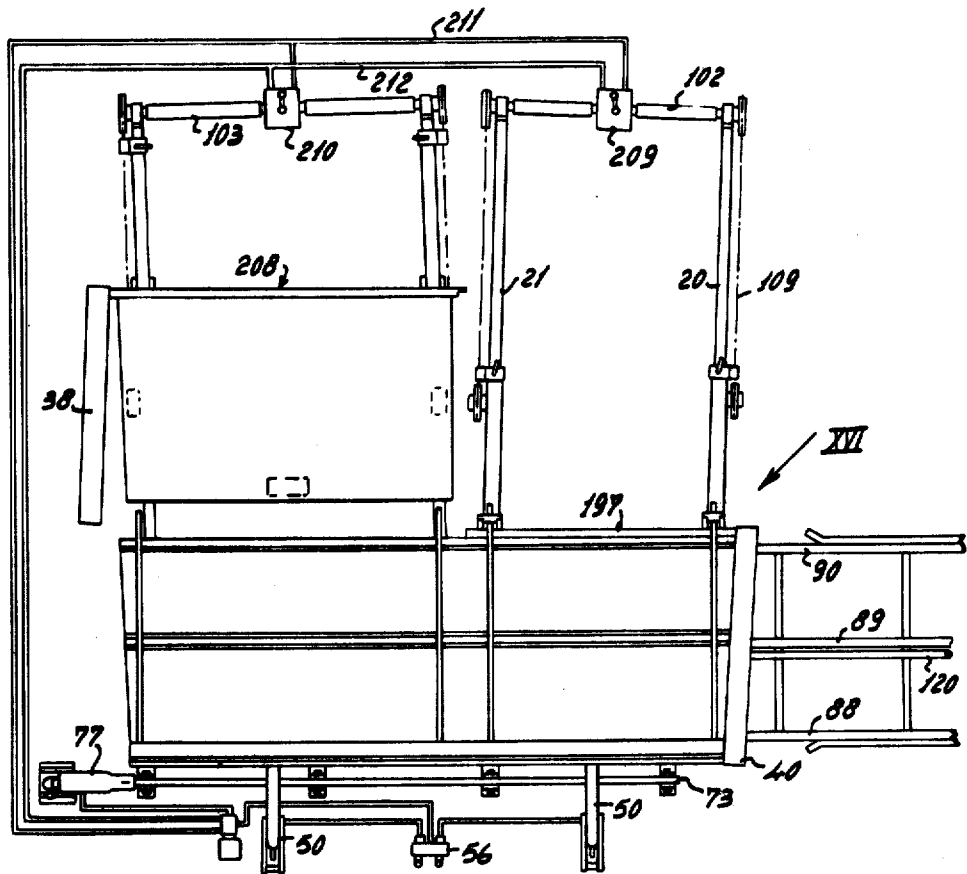
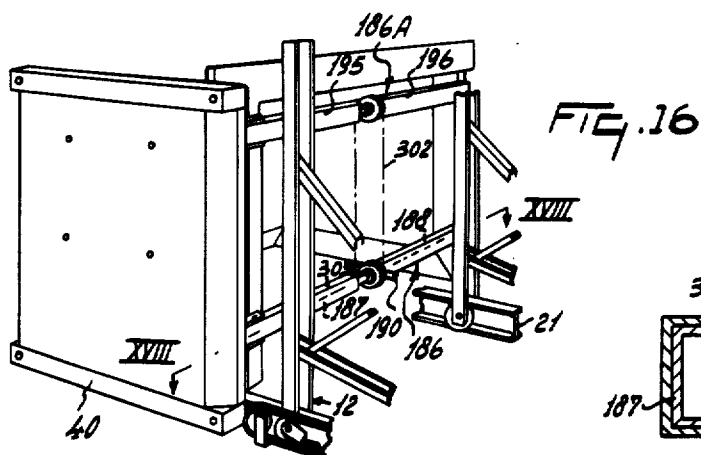
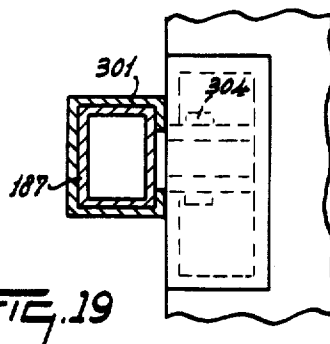
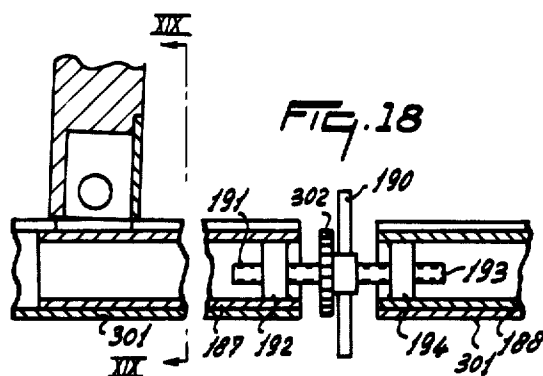
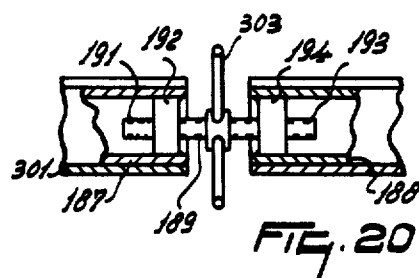
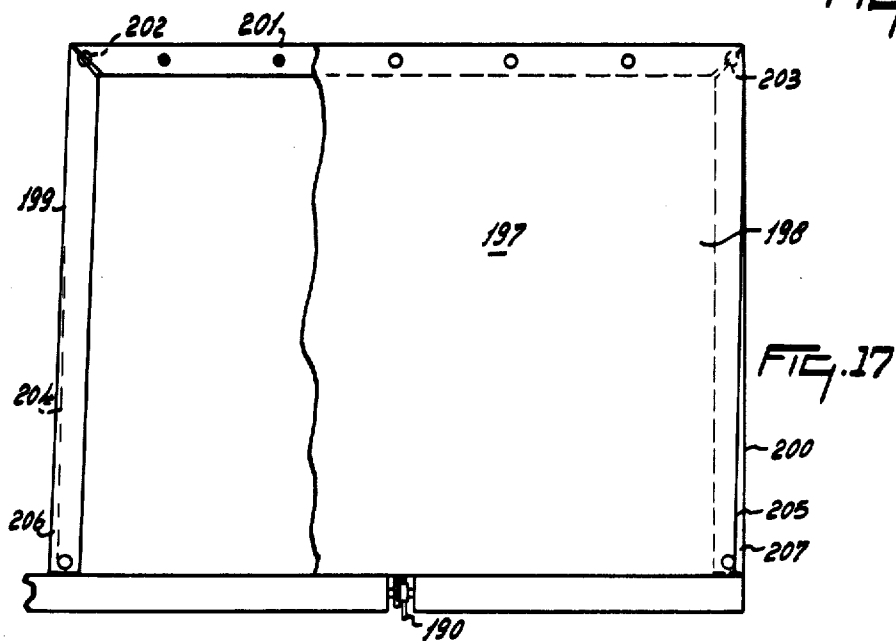


FIG. 15



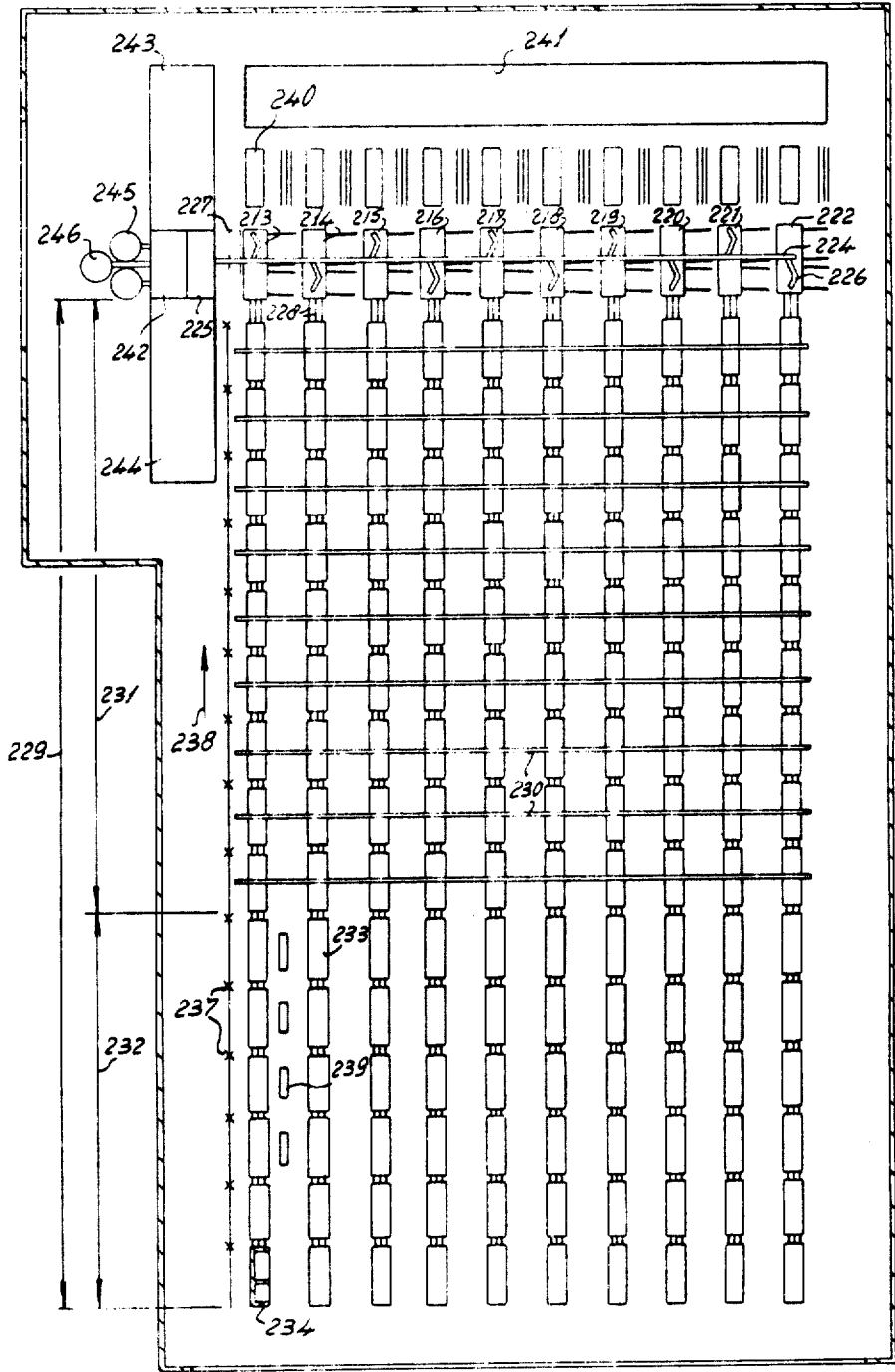
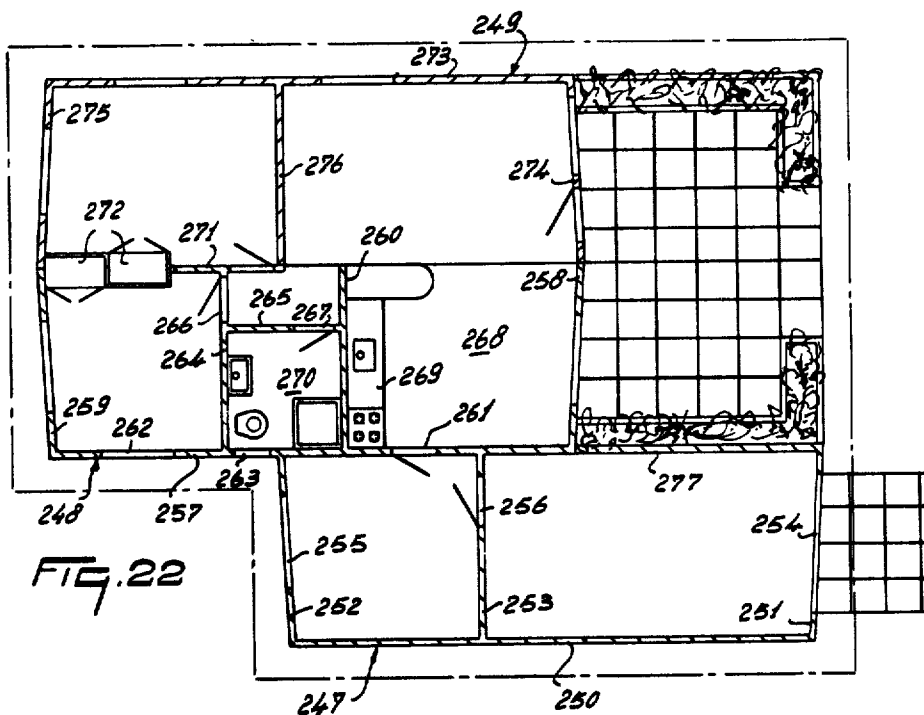
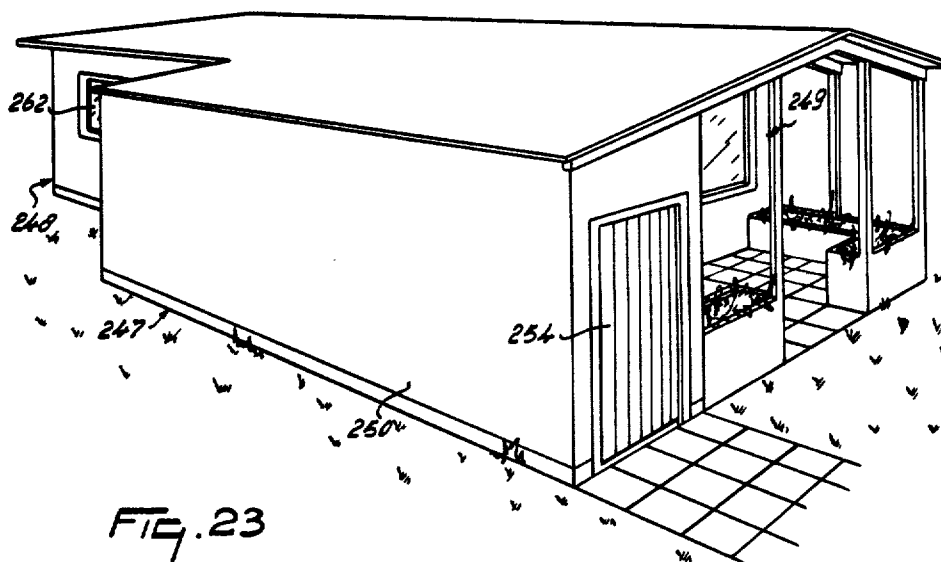


FIG. 21



APPARATUS FOR FORMING AND DISPLACING A PREFABRICATED BUILDING SECTION

This is a division of application Ser. No. 882,647, filed Dec. 5, 1969, now U.S. Pat. No. 3,652,052 issued Mar. 28, 1972.

One object of the invention is to provide a device with which building elements can be manufactured and the elements assembled into a building at the erection site.

One embodiment of the device in accordance with the invention is obtained when a completely displaceable jig of a device is fixed to a supporting structure adapted to move along a guide and coupled with the driving members. Thus the jig can be displaced readily.

The manufacture of a building element by means of the kind set forth herein can be simplified when the device comprises relatively movable jigs which can be relatively fixed whereby a mold is formed in which the building element can be molded while in the mold between the two jigs, a window frame or other similar member to be formed in the element can be put in place. The frame is fastened to at least one jig by means of members which are discoupled from the molded section, when the jigs are moved away from each other and from the molded element. With this arrangement, the need for loosening the frame window from the jigs is not required.

Loosening the jig parts can be accomplished when the device includes at least two relatively movable jigs which are fixed relative to each other to form a mold in which the building part is assembled to comprise at least two walls at an angle to each other or one wall and one floor and/or an upper side of the building part or section so that the section bounds at least part of the space of the building. The jigs can be removed from the building part being molded and means are provided for displacing at least one or more of the jigs at least substantially at right angles to the molded walls so that the jigs can be loosened from the molded part.

In a further embodiment the invention comprises a supporting member, the upper side of which forms at least part of the jig for the lower side of the floor of the section. The section is thus effectively supported when the jigs are detached from each other and separated. According to a still further aspect, the molded part can be moved away in a simple manner from its place of manufacture by having a conveyor path joining the supporting members, with which it extends over a given distance beyond the jigs, the distance being substantially equal to or larger than the distance over which the jigs extend in the direction of the supporting member. The section can thus be transported beneath the supporting members away from its place of manufacture so that this space becomes available for the molding of the next set of jigs to manufacture a further section.

The invention furthermore relates to a method of manufacturing a part or section used in the erection of a building, in which a mold is formed by a device comprising a plurality of relatively movable jigs. At least one of the jigs is displaceable along a guide by a driving member, while the other jig or jigs can be coupled with the displaceable jig, which which the material for molding the section in the resultant mold can be inserted between the jigs.

For a better understanding of the invention and to show how the same may be carried into effect, reference will be made to the accompanying drawings.

FIG. 1 is a perspective view of the device embodying the invention, illustrating a building part or section molded in said device.

FIG. 2 is a plan view of the device shown in FIG. 1.

FIG. 3 is a side elevation of the device shown in FIG. 1, viewed in the direction of the arrow III in FIG. 2.

FIG. 4 is a sectional view of part of the device shown to FIG. 1 taken on the line IV—IV in FIG. 2, a section molded in the device being shown at least in part.

FIG. 5 is a side elevation of the control-member for the lower jig of the device shown in FIG. 1, viewed in the direction of the line V—V in FIG. 2.

FIG. 6 is a horizontal sectional view of the connection of a pivotable outer jig with a displaceable inner jig taken on the line VI—VI in FIG. 1.

FIG. 7 shows on an enlarged scale a vertical sectional view of the support for the section and the draw beam coupled with the section taken on the line VII—VII in FIG. 4.

FIG. 8 is a plan view of the delivery unit for the sections.

FIG. 9 is a side elevation of the delivery unit of FIG. 8 viewed in the direction of the arrow IX in FIG. 8.

FIG. 10 is a perspective view of detail constructions of the inner and outer jigs for forming the rood beams to the section.

FIG. 11 is a side elevation of the details shown in FIG. 10 viewed in the direction of the arrow XI in FIG. 10.

FIG. 12 is a plan view of part of the feeding mechanism for casting material of the section.

FIG. 13 is an elevation of a structural detail of the device shown in FIGS. 1 to 12.

FIG. 14 is an elevation of the delivery end of the delivery unit in the direction of the arrow XIV in FIG. 8.

FIG. 15 is a plan view of a second embodiment of a device in accordance with the invention, this elevation corresponding with that of FIG. 2.

FIG. 16 is a perspective view of part of the device shown in FIG. 15, viewed in the direction of the arrow XVI in FIG. 15.

FIG. 17 is a plan view of an inner jig of the device shown in FIG. 15.

FIG. 18 shows an enlarged horizontal sectional view taken on the line XVIII—XVIII in FIG. 16.

FIG. 19 is a vertical sectional view of the connection of an inner jig with a supporting structure taken on the line XIX—XIX in FIG. 18.

FIG. 20 shows a further embodiment of the structural detail of FIG. 18.

FIG. 21 is a factory plan for the arrangement of a plurality of devices as shown in any one of the preceding Figures.

FIG. 22 is the plan of a building formed from sections made in a device as shown in any one of the preceding Figures.

FIG. 23 is a perspective view of the building as shown in FIG. 22.

FIG. 1 shows a building part or section 1 molded from case material. In this embodiment the section 1 is made of light-weight concrete, but it may also be made of a different kind of concrete or another cast material. The section comprises a floor 2, sidewalls 3 and 4 and a rear wall 5. On the upper side the section

1 has a ceiling wall 6. Between the sidewalls 3 and 4 a partition 7 is provided. The section is formed in a device comprising two inner jigs 8 and 9. The inner jig 8 is fastened to a supporting structure 10 and the inner jig 9 is fastened to a supporting structure 11. The supporting structure 11 comprises two vertical beams 12 and 13, to which struts 14 and 15 are secured vertical supports 16 and 17. The supports 16 and 17 are vertically displaceable with respect to the struts 14 and 15 by means of screw spindles 18 and 19 respectively. The supporting structure 11 bears on parallel guides 20 and 21 consisting of I-section beams. Two wheels 22 and 23 are provided on the lower sides of the vertical beams 12 and 13 respectively and located between the flanges of the beams 20 and 21 respectively. The supports 16 and 17 are provided with wheels 24 and 25, which are also held between the flanges of the guides 20 and 21. The supporting structure 10 for the inner jig 8 is constructed in the same way as the supporting structure 11, so that no further description need be made. The supporting structure 10 bears on guides 26 and 27 in the same way as the supporting structure 11 on the guides 20 and 21.

The inner jig 8 comprises two sidewalls 28 and 29 and a rear wall 20. The inner jig 8 has furthermore an upper side 31 and on its lower side, the jig 8 is open. The walls are formed by plates, such as the plate 32 of the rear wall 30, which plates can be stiffened by ribs such as 33 and 34 (FIG. 2). The walls 28 and 29 are inclined towards each other so that near the supporting structure 10 they are spaced away from each other by a larger distance than near the rear wall 30. On the side of the supporting structure 10, the wall 29 has a collar 35, and the wall 28 has a collar 36 near the supporting structure (FIG. 2). The inner jig 9 is constructed in the same manner as the jig 8 and need not be further described. In FIG. 2, the inner jig 9 is shown inside the section 1, whereas the jig 8 is shown outside the section. The portion 36 and the corresponding portion on the jig 9 have each a length equal to half the width of the wall section. As an alternative, only one collar having a length equal to or slightly larger than the thickness of the wall 7 may be arranged on one of the jigs 8 or 9.

The parallel guides 20 and 21 are slightly inclined with respect to the guides 26 and 27 as will be apparent from FIG. 2. The angle between the guides 26 and 27 is about 4°. To the supporting structure 10 is fastened an outer jig 38, which pivots about a vertical shaft 39. (FIG. 6). The supporting structure 11 is provided with an outer jig 40, which pivots about a vertical shaft 41. The vertical pivotal shaft 41 is formed by two pins 42 and 43, with which tags 44 and 45 of the jig 40 and horizontal beams 46 and 47 of the supporting structure 11 are connected. The outer jig 38 is coupled with the supporting structure 10 in a similar manner. The tags 44 and 45 extend along the collars 36 and 35 on the inner jig 8. The device includes a rear-wall jig 48, which pivots about a horizontal shaft 49. The rear-wall jig 48 is pivoted through struts 50 to the pivotal rods 51, which are hinged to ground plates 52. To the ground plates 52 are hinged cylinders 53, in which a displacer rod 54 is hydraulically movable. The displacer rod 54 is coupled in the hinge 55 between the strut 50 and the pivotal rod 51. Between the two struts 50 a control mechanism 56 is positioned for carrying out the displacement of the displacer rods 54 in the cylinders 53. The jig 48 is pro-

vided on the upper side with an oblique splash board 57. On the upper side the jig 48 is provided with four fastening rods 58 having each at one end 59 a hole for receiving a key 60. The ends 59 fit each between upright tags 61 and 62 of the vertical beams such as 12 and 13 of FIG. 1. The ends 59 of the rods are surrounded by supporting blocks 63, which bear on the upper ends of the beams 12 and 13. At the sides, the jig 48 is provided with locking hooks 64 as is shown in FIG. 3. The lateral outer jigs 38 and 40 have hooks 65 with which the locking hooks 64 cooperate.

The device includes a bottom jig consisting of two portions 66 and 67. These portions extend parallel to each other throughout the length of distance between the jigs 38 and 40. The jig portions 66 and 67 are fastened to four beams 68 (FIGS. 2 and 5), which extend at right angles to the longitudinal direction of the jig portions 66 and 67. The beams 68 are each hinged through supports 69 to supporting arms 70, which are coupled with tube 71, turnable about its longitudinal axis and extending parallel to the beams 68. As shown, four tubes 71 are coupled through a coupling rod 72 with an adjusting rod 73, located behind the jig wall 48 to actuate the four tubes 71 through a hydraulic mechanism 74 (not shown). The mechanism 74 comprises a cylinder 75, which pivots around the shaft 79 and a coupling rod 76, hinged to the rod 73 and displaceable in the cylinder 75. Around the cylinder 75, a lock bolt 77 is provided to cooperate with the hinge 78 between the rods 76 and 73. The lock bolt 77 pivots around the shaft 79.

The rear-wall jig 48 is provided with laterally projecting pins 80 and 81 which can be inserted into the holes 82 and 83 of the sidewall jig 40. The pins 80 and 81 are provided with holes for receiving pins 84 and 85. On the other side of the jig 48, pins 86 are provided for keys 87, said pins being adapted to be inserted into holes in the jig 38. The pins 86 and the holes in the jig 38 are formed in a similar manner as the pins 80 and 81 and the holes 82 and 83. On the edge facing the supporting structure 11, the inner jig 9 is provided with pins 280 and 283 (FIGS. 3 and 6), which fit in holes of the outer jig 40, for example the hole 281 of FIG. 6. Holes in these pins are adapted to receive keys 282 and 284 respectively.

The jig portions 66 and 67 are arranged between supporting beams 88, 89 and 90. These beams extend parallel to each other and the jig portions 66 and 67 fit almost exactly between these supporting beams. The beams 88 to 90 bear on vertical stands 91, which are provided with feet 92 at the lower ends. The stands 91 are secured by means of struts 93 to the respective supporting beams 88, 89 or 90. The supporting beams 88, 89 and 90 are intercoupled by horizontal beams 94 and 95, which are secured to the respective stands 91. (FIG. 4). The pivotal shaft 49 for the rear-wall jig 48 is arranged on a support 96, secured to the stands 81 for maintaining the correct position relative to the supporting beams 88, 89 and 90. If desired, the foot plates 52 for the pivotal rods 51 and the cylinders 53 can be coupled with the foot plate 96. Along the supporting beams 90, a beam 97 is arranged to join by the bottom side, one side of the upper part of the beam 90. The upper side of the beam 97 is flush with the upper side of the bottom 2 of the section 1. The guides 20 and 21 are arranged on stands 98, provided at the lower end with foot plates 99. The stands 98, on which rails 20

and 21 are arranged, increase in length from the supporting beam 90 towards the ends of the guides 20 and 21 so that the guides 20 and 21 extend obliquely upwards from the supporting beam 90. The supporting beams 26 and 27 are arranged in a similar manner on stands 100 with foot plates 101. At the ends of the guides 20, 21, 26 and 27 remote from the supporting beam 90, driving shafts 102 and 103 are provided. The driving shaft 102 is connected with a driving casing 104 accommodating a transmission which is coupled with an electric motor 105 standing on a foot 106. The ends of the shaft 102 are provided with chain sprockets 107 and 108, around which a chain 109 and 113 respectively is arranged. The chain 109 is guided along a chain sprocket 110, fastened to the guide 20. The chain sprocket 110 and the chain 109 are arranged so that the supporting structure 11 with the wheels 22 and 24 can move along the chain and the sprocket 110 when the wheels roll along the guide 20. The support 16 is coupled by means of a console 111 and a bolt 112 with the chain 109. In the same manner as specified for the chain 109, the chain 113 is arranged along the guide 21 and the support 17 is connected with the chain 113. In the arrangement described for the supporting structure 11, the supporting structure 10 is coupled with the driving shaft 103 and further details for the supporting structure 10 need not be shown.

The beams 88, 89 and 90 are joined by a conveyor path formed by delivery beams 114, 115 and 116 (FIGS. 1 and 8). The beams 114, 115 and 116 are in line with the beams 88 to 90 and are detachably coupled herewith. The beams 114 to 116 bear on stands 117, which are provided at the lower end with foot plates 118. The connection of the stands 117 with the respective beams is reinforced by struts 119. The beams 114 to 116 are intercoupled by horizontal beams, which are secured to the stands 117 and which correspond with the horizontal beams 95 and 94 of FIG. 4.

Along the supporting beams 89 and 115 extends a draw beam 120 (FIGS. 4 and 7). This beam 120 is located on that side of the supporting beams 89 and 115 which faces the beams 88 and 114. The beam 120 can be held by supports secured to the horizontal beams 95. The draw beam 120 is coupled with a chain 121. For coupling the draw beam 120 with the chain 121, the latter is provided with fastening members so that the draw beam 120 can be connected at many places with the chain 121. The chain 121 extends along chain sprockets 122 and 123, which are fastened to the delivery beam 115 or the stands 117 of said beam. The chain sprocket 123 is linked to a driving casing 124, with which a motor 125 is connected.

The inner jig 9 is provided on the upper side with an upright rim 126. The upright rim 126 projects on the side facing the jig 8 slightly beyond the upper side of the jig over a distance equal to half the thickness of the partition 7. The upright rim 126 is provided on the side facing the outer jig 40 with a collar 128 having a vertical rim 129, an upwardly inclined rim 130 extending away from the jig 9 and a vertical rim 131. The rim 129 is in line with the outer edge of the projecting part 295 of the jig 9, which part corresponds with the part 35. The upright rim 126 is provided with short walls 132, 133 and 134, which join the rims 129, 130 and 131. The walls 132, 133 and 134 together with the upright rim 126 form a trough which is open on the side remote

from the upright rim 126. The wall 134 is provided with a fastening tongue 135. The outer jig 40 is provided approximately midway in the direction of width 296 of the jig 40 with a short upright wall 136, an inclined wall 137 and an upright wall 138. The walls 136 to 138 correspond with the walls 132 to 134 of the rig 9. The wall 138 is provided with fastening tongues 139 and 140.

On the inner sides of the inner jigs 8 and 9, vibratory motors are provided as is shown in FIG. 2 for the inner jig 8. Each of the vertical walls, i.e. the walls 28, 30 and 29 are provided with vibratory motors 141, 142 and 143. In the same way, each of the vertical walls of the inner jig 108 has a vibratory motor. Near the rear jig 48, a supporting pole 144 (FIG. 3) is provided. This supporting pole projects above the jigs and is provided at the upper end with a projecting arm 145 (FIGS. 3 and 12), which is hinged to the pole 144 by means of a pivotal shaft 146. The projecting arm 145 consists of two portions 147 and 148, which are pivotally coupled with each other by means of a pivot 149. The supporting arm 145 holds a flexible conveyor hose 150, which is provided near the end of the arm 145 with a suspending portion 151 having an outlet nozzle 152. The conveyor hose 150 is held on the pole 144 by a support 153. From this support 153 the conveyor hose 150 extends along the pole 144 to a pump 154. The outlet nozzle 152 is provided with a steering bar 155 for moving the outlet nozzle 152 with respect to the arm 145. The steering bar 155 can be actuated from a platform 156, arranged between the pole 144 and the rear-wall jig 48. The platform 156 has a ladder 157.

The device can be used as follows. The lower jig consisting of the portions 66 and 67 is moved to the correct height by the hydraulic mechanism 74 connected with the jig portions 66 and 67 by the rod 73, the tubes 71 and the supporting beams 68. The jig portions are moved into the position shown in FIG. 4. The lower sides of these jig portions join the upper sides of the supporting beams 88, 89 and 90. On either side of the jig portions 66 and 67 the supporting beams 88, 89 and 90 are provided with gutters 158, 159 and 160 of metal or other similar material. These gutters extend over the whole length of the jigs 66 and 67. Then the inner jigs 8 and 9 are put in position by displacing the supporting structures 10 and 11 in the direction of the arrow 161. These inner jigs then arrive in the positions as shown in FIG. 2 for the jig 9 and in FIG. 3 for the two jigs 8 and 9. In this position the upright rims of the jigs 8 and 9 and, for example, the upright rim 126 of the jig 9 come into contact with each other. Between the jigs 8 and 9 a space is left intended for making the partition 7. After the jigs 8 and 9 are set in position, the rear-wall jig 48 is moved into the correct vertical position, after which the outer jigs 38 and 40 are turned about their pivotal shafts and connected at their ends with the jig 48 by locking bolts 64. The rods 58 on the upper side of the jigs 48 get in between the tongues such as the tongues 61 and 62 of the supporting structures 10 and 11, after which the rods 58 can be fixed in position relative to the jigs 8 and 9 by keys, for example, key 60. The blocks 63 are slipped on the ends 59 of the rods 58 and get in between the keys 60 and the upper ends of the beams 12 and 13. The jigs 38 and 40 can be fastened to the rear-wall jig 48 by keys, for example, keys 84 and 85 (FIG. 3). It will be apparent that the order of succession of the operations for arranging the jigs in

the position in which the mold is ready for casting the section 1 may be different from the foregoing.

When the jigs are in the above-described position, the material to be used for the section 1 can be cast in the mold formed. In this embodiment the section is made of cast concrete. The material to be supplied, for example, concrete, is conveyed via the pump 154 and the feeding hose 150 to the mold. The feeding hose 150 can be actuated from the platform 156 by means of the steering bar 155. A switch or other control member can be provided for the pump 154 on the platform. With bar 155, the delivery nozzle 152 can be moved to different places above the jigs for casting the material at the desired places. The walls to be formed, such as the walls 3, 4, and 7, 5 are filled from the upper side. The material for the floor 2 can, if desired, be fed via the lower side of the walls and be smoothed on the inner side of the inner jigs. This can be readily carried out, since the inner jigs 8 and 9 are open on the bottom side. Between the jig portions 66 and 67 the ribs 162, 163 and 164 are formed on the bottom side of the floor 2. The jig portions 66 and 67 are furthermore shaped in a form such that transverse ridges such as 165 and 166 (FIG. 7) are formed between the ribs 162, 163 and 164. The ridge 164 is formed between a jig portion 67 and the front beam 97, while the ridge 162 is arranged between the rearwall jig 48 and the jig 66. After the jig portions 66 and 67 are put in their places, the floor 2 can, as an alternative, be cast for the major part, for example, of concrete, after which the inner jigs 8 and 9 and the outer jigs 38, 40 and 48 are arranged in their places and interconnected, the walls being subsequently cast.

To include a window frame 167 in the wall 3, the frame 167 can be fastened to the jig 40, when the mold is made from the various jig portions. For this purpose the jig 40 may be provided with pins 168, 169, 170 and 171. These pins may be driven into the window frame, which can be wood. It is possible to use double-headed nails as shown in FIG. 13. The end 298 can then be driven by the jig into the frame, while the portion 291 between the head 293 and the stop 292 remains outside the jig and afterwards can be drawn out of the frame and the jig. As an alternative, a pin may be used, which breaks off at the separation between frame and jig when the jig is removed when the section is molded. As a further alternative, these pins can be provided on the jig 40 so that they are accurately located in the corners on the inner side of the frame 167 so that the frame 167 fits around the pins 168 to 171. The frame is then completely enclosed between the inner jig 9, the outer jig 40 and around the pins 168 to 171. After the section has been cast, the pins 168 to 171 fastened to the jig 40 are automatically removed from the frame when the jig 40 is turned away and no special operations are required for this purpose. The frame can have anchors embedded in the material so that a satisfactory anchorage of the frame in the cast material is ensured. After the floor 2 with the ridges and the walls 3, 4, 5 and 7 have been filled, the upper side of the section 1 can be formed by casting the upper side 6 on the jig portions 8 and 9. The upper side can be cast so that it is formed by the upper rims of the jigs 38, 40 and 48. Subsequently, or prior to casting of the concrete, boardings can be provided by forming the roof beams 172 and 173. The roof beam 172 is formed between the upright rims 126 and the collars 128 formed at the ends thereof

with the walls 137 to 139 and a boarding 174, which can be secured to the fastening tongues 135 of the wall 134 of the inner jigs 8 and 9 by means of a pin 285 and a key 286. In the roof beams 172 and 173 wooden girders can be embedded so that afterwards a roof can be secured readily. These wooden girders can have a width slightly smaller than the width of the roof beams 172 and 173 and they can have anchors. The wooden girders are out to size with respect to casting of the material in the mold formed between the boardings. On either side of the wall 138, boardings 175 and 176 are fastened to the fastening tongues 139 and 140 of the inner walls 8 and 9 by means of a pin 287, which is taken through the two tongues 139 and 140 and through keys 288 and 289. The beams 172 and 173 are formed by filling the mold between said boardings and the upright rims and walls of the inner jigs 8 and 9. The inner jig 8 is provided for this purpose with projecting wall portions equal to those shown in FIGS. 10 and 11 for the jig 9. The splash screen 57 facilitates filling the space between the rear-wall jig 48 and the jigs 8 and 9 with cast material, while it is not practical for cast material to reach the side of the rear-wall jig 48. In order to ensure satisfactory filling of the walls, vibratory motors 141, 142 and 143 may be provided on the inner sides of the jigs 8 and 9. In this way the section 1 shown in FIG. 1 is obtained.

When the cast material has sufficiently hardened, the jigs can be moved away from each other. For this purpose the keys 60, 84, 85 and the locking bolt 64 are removed. These keys have the advantage that they cannot be soiled seriously during use. Then the rear-wall jig 48 is turned away into the position shown in FIG. 1. The rear-wall jig is moved into the position shown in FIG. 1 by extending the sliding rod 54 out of the cylinder 53 by means of the hydraulic drive 56. The lateral jigs 38 and 40 are then turned about their pivotal shafts 39 and 41. Then first the partitions 175 and 176 will be loosened. The jig portions 48, 40 and 38 and 66, 67 are thus moved in a direction at least substantially at right angles to the walls formed in the respective jig portions, when they are removed from the molded section. Then the locks of the inner jigs 8 and 9 can be loosened, these locking connections comprising an abutting cam 177 on each guide 20, 21, 26 and 27 and lock bolts 178, fastened to the supporting structures 10 and 11 so as to be rotatable. After the lock bolts 178 are removed from the cams 177, the supporting structures 10 and 11 with the inner jigs 8 and 9 and the outer jigs 38 and 39 are displaced along the guides 20, 21, 26 and 27 in a direction opposite the arrow 161. This displacement can be carried out by means of the motor 105 and the corresponding motor for the supporting structure 10. These motors move the chains 109, 113 and the corresponding chains of the supporting structure 10 so that the supporting structures 10 and 11 are moved along the guides in a direction opposite the arrow 161. The boarding 174 is removed from the roof beam 172 formed on the upper side of the section, after it has been released from the inner jigs 8 and 9, before the latter are displaced.

By means of the hydraulic mechanism 74, the jig portions 66 and 67 are moved downwards so that they arrive at the positions shown in FIG. 1. The section 1 thus made in the mold formed between said jigs then bears by the ridges 162, 163 and 164 on the supporting beams 88, 89 and 90. The gutters 158, 159 and 160 are

cemented to these ridges 162 to 164. For establishing a satisfactory connection of these gutters with the ridges, the gutters may be provided with pins extending in the ridges. For stiffening the section, reinforcing can be used, if desired, prior to casting of the material in the spaces between the various jigs so that subsequent to casting, the reinforcing is embedded in the cast material. The removal of the inner jigs 8 and 9 can be readily carried out because the guides 20 and 23 are slightly inclined relative to the guides 26 and 27, whereas the outer sides of the jigs 8 and 9 and the outer jigs 38 and 40 are positioned so that the walls 3 and 4 diverge in a direction opposite the arrow 161. The removal of the jigs 8 and 9 from the molded section 1 will thus involve a release from the walls 3, 4 and 7.

When the molded section 1 is completely free of the jigs and has sufficiently hardened, a conveyor beam 178 can be fastened to the draw beam 120. This conveyor beam 178 (FIGS. 4 and 7) is located on the upper side by an opening around the projection of the roof beam 173 and if necessary secured to the section. The lower end is coupled by means of a pin 180 with the draw beam 120. The draw beam 120 is arranged above the jig 66 and connected with the chain 121. Then the draw beam can be displaced by the motor 125, the transmission 124 and the chain 121 in the direction of the arrow 181. The section 101 will thus be displaced along the supporting beams 88, 89 and 90 and the delivery beams 114, 115 and 116 joining the former in the direction of the arrow 181. It will be obvious that in order to be able to displace the section 1 in the direction of the arrow 181, i.e. at right angles to the direction in which the jigs 8 and 9 can be displaced, the inner jigs 8 and 9 with the outer jigs 38 and 40 being displaced over a distance equal to the width 296 of the jig 40. This is matched by the length 297 of the guides 20, 21, 26 and 27. The width 296 depends upon the desired width of the section to be made by means of the device. For transport purposes, width 298 of the section will be about 250 cms. An easy removal of the inner jigs from the molded section can also be obtained by a releasing movement of the upper sides of the inner jigs 8 and 9 from the inner side of the upper wall 6 of the section. This can be achieved by causing the roof wall 6 and the upper sides of the jigs 8 and 9 to incline in the direction 161, i.e. opposite the direction in which the jigs are removed from the section at an angle to the direction of movement of the section. In order to prevent the lower side of the rear walls 32 of the jigs 8 and 9 from scraping along the upper side of the floor 2 of the molded section, the jigs 8 and 9 are moved upwardly at an angle of a few degrees, for example 4°, when the floor 2 is horizontal in the mold formed by the jigs, in the direction opposite the arrow 161. The guides 20, 21, 26 and 27 are therefore arranged at said angle to the horizontal. The roof 6 will therefore incline downwards with the upper sides of the inner jigs at an angle of, for example, 7° at a minimum in the direction of the arrow 161. The roof 6 will therefore be inclined with the upper sides of the inner jigs at an angle of, for example, 7° at the least in the direction of the arrow 161.

After the molded section 1 is removed by displacing it along the supporting beams with the gutters 158, 159 and 160, the material of which is such that the section can readily slide along the beams, the jigs can again be joined to each other so that a mold is again formed to

make a further section. The jigs 8 and 9 can again be displaced by the motors 105 in the direction of the arrow 161. The motors are reversible electric motors in order to move the jigs both in the direction 161 and in the opposite direction. In order to remove the section 1 completely from the jigs, the conveyor path formed by the beams 114, 115 and 116 with the portion 300 of the supporting beams will preferably have at least the same length as the length 299 of the section. The length 299 in this embodiment is about 750 cms. This length can, however, be varied to suit transport factors and the size of the desired building to be formed from one or more sections. The displacement of the sections along the supporting beams 88, 89, 90 and 114 to 116 can be readily carried out by means of the draw beam 120. The draw beam 120 and the conveyor beam 178 are located on either side of the center in the direction of width 182 of the section.

Since the molded section is completely open on the side opposite the wall 5, the plane of gravity 183 is located at the side of the center in the direction of width 182 of the section. The conveyor beam is located, viewed from the center, further towards the side of the plane of gravity 183 (FIG. 4) so that when a force is exerted on the section for shifting it in the direction 181 along the supporting beam it will not draw the section obliquely along said beams. In order to avoid an oblique shift of the section guide members 184 and 185 (FIG. 2) may be provided on the distal sides of the beams 114 and 116. These guide members have their upper sides on a slightly higher level than the upper sides of the beams 114 and 116.

The whole arrangement comprising the various jigs, guides and supporting beams is completely located above the ground and can be held on the ground by means of the foot plates, such as 92 and 99, while the various parts can be intercoupled for fixing their correct relative positions. The space above the ground is so large that the lower jigs 66 and 67 can be readily moved up and down, i.e. at right angles to the bottom 2. The arrangement need not be fixed to a floor, for example, of concrete.

In the embodiment shown in FIGS. 1 to 13 the jigs 8 and 9 form each a unit. For obtaining a satisfactory release of the jigs it is desirable for the walls such as 5 and 4 to be inclined to each other over a few degrees, for example about 8°.

FIGS. 15 to 19 show a further embodiment in which the inner jigs have a construction slightly differing from that of the first embodiment. The parts illustrated in FIGS. 15 to 19 corresponding with the parts shown in FIGS. 1 to 14 are not shown in detail in this second embodiment and they are designated by the same reference numerals. In the embodiment shown in FIGS. 15 to 19 beams 185 and 186 are arranged for example on the supporting structure 11 near the beams 46 and 47. The beam 185 comprises two portions 187 and 188. The portions 187 and 188 are slidably coupled with the beam 46 by means of bearings 301, which are pivoted to the supporting structure by means of pivotal shaft 302. The portions 187 and 188 are interconnected by a bar 189, which is provided at the center with a control member 190, on either side of which the bar is provided with opposite screwthreads 191 and 193. The screwthread 191 is screwed into a tube 192, fastened to the portion 188, and the screwthread 193 is screwed into a taper sleeve 194 connected with the portion

187 of the beam 185. The beam 186 is constructed like the beam 185 from two portions 195 and 196, which are coupled in the same manner with the beam 47 and are interconnected as is described for the beam 185. An inner jig 197 is arranged on the beams 185 and 186. This inner jig 197 has an upper side 198, two sidewalls 199 and 200 and a rear wall 201. The sidewall 199 is connected with the portions 188 and 195 of the beams 185 and 186, whereas the sidewall 200 is connected with the portion 187 and 196 respectively.

The sidewalls 199 and 200 are hinged to the rear wall 201, the sidewall 199 being adapted to turn about the pivotal shaft 202 and the sidewall 200 about the pivotal shaft 203. These pivotal shafts 202 and 203 are located substantially in the plane of the rear wall 201. The upper wall 198 is rigidly fixed to the wall 201 and bears on supports 206 and 207, fastened to the sidewalls 199 and 200, the upper wall 198 having sides 204 and 205 slightly tapering towards the beams 185 and 186, while the supports 206 and 207 on the upper sides of the walls 199 and 200 have such a width that the re-entrant sides 204 and 205 are always sufficiently held by the upper sides of the supports 206 and 207.

The supporting structure 10 is provided with an inner jig 208, which is formed in the same manner as the jig 197 and is fastened to the supporting structure 10 in the same way as is described for the jig 197 on the supporting structure 11. The outer jigs 38 and 40 are fastened to the supporting structures 10 and 11 in the same way as is described in the first embodiment. The jigs 197 and 208 have substantially the same dimensions as the jigs 8 and 9. When the section is molded as described with reference to the first embodiment, the inner jigs 197 and 208 can be loosened as follows.

The inner jig 197 can be readily loosened from the cast section by turning the control members 190 so that the portions 187 and 188 move towards each other like the portions 195 and 196 of the beams 185 and 186. Since the control member 190 is coupled by a chain 302 with a chain sprocket between the beam portions 195 and 196, the two portions of the beams 185 and 186 will move synchronously. The walls 199 and 200 will thus turn about their pivotal shafts 202 and 203 so that they move towards each other approximately at right angles from the wall molded on them. The sidewalls 199 and 200 of the inner jig 197 will thus be loosened from the walls. Then, as is described with reference to the first embodiment, the inner jig and the outer jig can be displaced along the guides for removing the inner jig from the molded section. It will be obvious that in this embodiment the walls such as 3 and 4 need not be inclined to each other over a small angle. The walls 3 and 4 may extend substantially parallel to each other. A very small inclination may be useful for sliding the rear wall 201 from between the walls. An angle of, for example, 2° is already sufficient. The guides 20 and 21 may be arranged accordingly substantially parallel to the guides 26 and 27.

In this embodiment, the motors 105 for the supporting structure 11 and the corresponding motor of the supporting structure 10 are replaced by reversible, hydraulic motors 209 and 210 respectively. These hydraulic motors may communicate through ducts 211 and 212 with a hydraulic system of the mechanisms 74 and 56 (FIGS. 2 and 3). Although in the second embodiment the portions 188 and 187 of the beam 185 can be moved by manual force with the aid of the screw

spindle 189 towards or away from one another. This may also be performed hydraulically. Especially in the latter embodiment, in which a hydraulic system is available, a hydraulic cylinder with ducts can be arranged between the portions of the beams 185 and 186 so that the two portions of the beams 185 and 186 can be moved through hydraulic mechanisms towards each other or away from each other. It will be obvious that after a section has been molded in the last-mentioned embodiment, the walls 199 and 200 can be reset into their correct positions for the manufacture of a next section.

FIG. 20 illustrates a control coupling 203 between the beam portions 187 and 188 without a chain or a chain sprocket as in FIG. 18. If the mechanisms for slipping the beam portions 185 and 186 in and out are not coupled with each other by a chain, each beam can be provided with a coupling as shown in FIG. 18. The method of fastening the inner jigs to the supporting structures as shown in FIG. 16 can, in principle, be employed with jigs such as 8 and 9 forming each a unit. In the latter case, it may be sufficient to have the sidewalls, for example, 28 and 29 (FIG. 2) slightly resiliently movable with respect to the other walls so that they can be slightly drawn towards each other.

FIG. 21 shows a plan for an industrial plant of a plurality of devices of the kind shown in FIGS. 1 to 20. FIG. 21 illustrates ten devices 213 to 222 arranged side by side. Above these devices a feeding tube 224 extends from a pump or a similar mechanism 225 for conveying the cast material towards the last device 222 of the row. The mechanism 225 can be a concrete pump, when the sections are made of cast concrete. Above each device the duct 224 has a double arm 226 which can be regulated in the same manner as is illustrated in FIGS. 3 and 12 for the arm 145. For this purpose a platform 227 is arranged behind each device. This is shown for the device 214 in FIG. 21. The device 213 is provided with a conveyor path 228 for the delivery of the sections from the device. This conveyor path corresponds with the supporting beams 114 to 116. The conveyor path 228 extends over a length 229 from the device 213 so that a great number of molded sections can be held thereon. The sections can be displaced by a draw beam such as the draw beam 120, which is coupled with a delivery mechanism extending over the whole length 229 and comprising a circulating chain. For displacing a section along the conveyor path 228 the draw beam can be provided with a draw hook, such as the draw hook 178 by which the section concerned can be shifted along the supporting beams.

In accordance with the strength of the chain, two or more sections at will can be shifted simultaneously along the path 228. The path 228 has a length 229 such that, for example, over the distance 231 nine sections can be arranged one after the other. Over the part 231 a spraying system may be arranged above the path 228, which system is formed by the tubes 230. This spraying system may be particularly useful in dry locations in order to avoid an excessively rapid drying of the sections, which are preferably kept humid. The wetting system may extend over the whole block within the length 213 of the conveyor paths joining the devices 213 to 223. On the part 232 each section may then be further finished for accommodating ducts, sanitary, doors and windows and if desired, for placing further partitions. In this embodiment six sections can be put

over the distance 232, the finishing operations starting, for example, at the section 233 and being completely achieved at the end of the path so that in this embodiment the section 234, located at the end of the path 228 is completely finished and can be picked up from the path, for example, by a transport van 235 (FIG. 14). The transport van 235 is provided for this purpose with a loading surface 236, which is located at the same level as the conveyor paths 228.

In order to obtain an easy control of the displacement of the sections throughout the length 229 by means of the delivery mechanisms a great number of switches 237 may be provided so that at any point of the path 229, the delivery mechanism, such as a conveyor chain with the draw beam fastened thereto, can be actuated. It will be obvious that the draw beam has to be detached from the chain and has to be re-arranged in the direction of the arrow 238, when it has been displaced to an extent such that it can no longer move with the chain or when a further section has to be coupled with the draw beam. It is sufficient for the draw beam to have a length not greatly exceeding the length 229 of the section. The draw beam may also have such a length as corresponds to the lengths of four or five consecutive sections. Then a plurality of beams such as 178 can be fastened to the draw beam which extends throughout the length 229.

Over the distance 232 working tables and stores of materials 239 can be arranged at the side of the sections on the path 228 for finishing the sections. On the other side than that of the conveyor path 228 stores 240 may be arranged at the side of the sections 213 to 223 for making reinforcing networks ready for being arranged in the mold bounded by the jigs so that the floors, walls and the upper sides of the sections can, if desired, be made of reinforced concrete. At the side of the working positions 240 a supply store 241 may be arranged.

The pump 225 can communicate with a concrete machine 242, on either side of which reservoirs 243 and 244 are arranged which contain adjuvants for the concrete. The machine can furthermore have reservoirs 245 for cement and 246 for water and operations can be carried out at the side of a cement factory. If, for example, each day a section is made in the device, all sections can be displaced by one position every day. In the factory of the plan illustrated in FIG. 21, the invention permits the making of a great number of sections, which can be interconnected at the building site to erect a building. The manufactured sections allow the erection of a building as is shown by way of example in FIGS. 22 and 23.

The building shown in FIGS. 22 and 23 comprises three sections 247, 248 and 249, all of them having the same basic shape. The section 247 has a rear wall 250, sidewalls 251 and 252 and a partition 253. These walls may be compared with the walls 5, 3, 4, 7 in FIG. 1. In this section, the walls 251 are provided with a large frame for doors 254, whereas the wall 252 is provided with a window 255. The wall 253 has a door 256. It will be obvious that prior to casting the frames for these openings in the walls may be arranged in plane in the manner corresponding to fastening of the window frame 167 in FIG. 1, described above. The frames are thus arranged at the desired heights in the jigs. The section 248 has a rear wall 257, sidewalls 258, 259 and a partition 260 which correspond with the walls 5, 3, 4

and 7 respectively of FIG. 1. When the section 248 is cast, frames are arranged in the rear wall for the door 261 and the windows 262 and 263. Prior to casting, the sections with frames for doors and windows at different places the jig walls concerned can be provided with fastening places for pins so that the required frames for windows and doors in the walls can be fastened to the jigs so that they remain at the correct places in the jigs during casting.

The fastening places for the pins such as the pins 168 to 171 in FIG. 1 can be such that a great variety of disposition of the frames in the jigs is provided. After casting the basic form of the section 248 the partitions 264 and 265 may be provided with doors 266 and 267 respectively during the further finishing operations. During the finishing operations the space 268, which serves as a kitchen, may be provided with the kitchen outfit 269. The space 270, serving as a toilet and a bathroom, may accommodate the required sanitary during the finish of the section. The wall 271 may also be arranged in the section 248 during its finish. The cupboards 272 within, since they fall beyond the main sizes of the section, may be fastened in the building on the site. During finishing of the sections the required fastening points may be provided for these cupboards. It will be obvious that the section 249 also corresponds to the main shape illustrated in FIG. 1, while the rear wall 272 corresponds with the wall 205, whereas the walls 274, 275 and 276 correspond with the walls 3, 4 and 7 of FIG. 1 in section 1. Although FIGS. 22 and 23 show a building comprising three sections manufactured in the device shown in the preceding Figure, a building may as an alternative be formed from only two sections or more than three sections.

The basic shape of each section can comprise three short walls with a rear wall and upper and lower sides. In the section 247 the wall 277 is also arranged in the section during the finishing operations. The completely prefabricated sections can be transported from the factory to the building site, where the sections are put in place and fastened to each other.

For fastening the sections to each other, precautions can be taken during the manufacture to form short, projecting ridges through which bolts can be taken. The sections can thus be arranged on a flat strip of ground or on a concrete or tile surface. In this manner, the buildings can be manufactured rapidly and cheaply since they are composed of sections having the same basic shape. It will be apparent, however, that the devices shown in FIGS. 1 to 21 may be slightly modified so that a different basic shape of the section results. If desired, the factory shown in FIG. 21 can manufacture half of the number of devices or a different number, for example, in the ten devices, for a different basic shape of a section than shown. Then a building can be erected from sections of a different basic shape so that the distribution of the space in the building can be obtained as desired by using different sections.

What is claimed is:

1. A device for molding a prefabricated section configured to form and enclose a part of a building, said device comprising jig means to form a mold in which said section is cast, said jig means having displaceable outer side jigs and at least one displaceable inner jig whereby said section is releasable from said jig means, supporting structure provided for said inner jig adapted to move said inner jig in a first horizontal direction, dis-

placement means to displace said outer side jigs also in said first direction, said jig means including a supporting member at the lower side to support the said section, said device including a conveyor to displace in a horizontal direction substantially perpendicular to said first mentioned direction said section over the supporting member and out of the mold defined by said jig means.

2. A device as claimed in claim 1, wherein a conveyor path joins the supporting member whereby said section is displaceable from said supporting member on said conveyor path by said conveyor.

3. A device as claimed in claim 2, wherein said supporting member and said conveyor path include each at least one supporting beam, whereby an end of the supporting beam of the supporting member joins an end of the supporting beam of the conveyor path.

4. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose a part of said building whereby said section includes a bottom side, vertical walls and an upper side, said device comprising jig means which forms a mold in which said section is cast, said jig means having a plurality of inner and outer jigs to form said bottom side, walls and upper side of each said section, each said jig being displaceable, at least one outer jig for a wall and an inner jig of said jigs being displaceable as a whole in a direction transverse to said sections length over a distance at least equal to one said sections width whereby said molded section is releasable from the device, said device including supporting members defining a path extending parallel to the longer sides of said section whereby said section is displaceable out of the mold enclosed by said jigs means over the said path.

5. A device as claimed in claim 4, wherein said supporting members coextend with the conveyor path over a distance beyond said jig means, said distance being at least as great as the distance over which said jig means extends in the direction of said supporting member.

6. A device as claimed in claim 5, wherein said conveyor path is associated with a delivery mechanism having coupling members which can be fastened to an element provided in said jig means.

7. A device as claimed in claim 6, wherein said delivery mechanism comprises an endless conveyor member connected with a prime mover, a draw member being connectable to said conveyor member at one or more settings, said draw member having coupling means for connecting the same at said settings.

8. A device as claimed in claim 7, wherein said coupling means includes a beam which extends vertically along the section being molded to be positioned on the top side thereof.

9. A device as claimed in claim 8, wherein said beam has its upper side fastened to a roof beam of said section.

10. A factory for manufacturing prefabricated concrete sections for forming at least part of a building, said factory comprising a device for the molding of said sections which has relatively movable jigs within which each of said sections are cast, said jigs including bottom jigs which are displaceable vertically and include means to form ribs in the bottom of each said section and outer and inner jigs with means for displacing same in a first direction horizontally by a distance greater than the width of each said section cast therein, rein-

forcement rods for the concrete sections being positioned to one side of said device, a conveyor being located on the other side of said device whereby a conveyor path is formed along which cast concrete sections are moved out of said device in a second direction substantially perpendicular to said first direction.

11. A factory as claimed in claim 10, wherein said factory comprises a curing and finishing workshop communicating with said conveyor path.

12. A factory as claimed in claim 11, wherein at least one control member is arranged along said conveyor path for actuating a delivery mechanism located near said conveyor path.

13. A factory as claimed in claim 12, wherein a concrete mixing system is located adjacent said device and a delivery member leads to said device.

14. A factory for manufacturing prefabricated sections for forming at least part of a building, said factory comprising a device for molding of said sections having a bottom side, a wall and an upper side, said device comprising jig means which encloses a mold and includes relatively moveable jigs within which each of said sections including said bottom side, said wall and said upperside are cast, supporting members for said section mounted in said device adjacent a bottom jig which is included in said jig means, said supporting members extending out of the device and defining a path along which each said section is displaced out of the mold enclosed by said jig means to a curing and finishing workshop in said factory, said workshop communicating with the part of the path extending out of said device.

15. A factory as claimed in claim 14, wherein said factory comprises a set of devices for molding said sections, said devices and their respective said conveyor paths being located parallel to one another in said factory.

16. A factory as claimed in claim 15, wherein supply means by which cast material for the section can be fed to the mold defined within said jigs is situated over said set of devices, said supply means being joined to a system for making the cast material, said system being located in said factory at one side of the set of said devices.

17. A factory as claimed in claim 15, wherein said sections have longer and shorter sides, in plan view, said conveyor paths joining said devices at the shorter sides of said sections and extending parallel to the longer sides over a distance which is longer than the length of each said section.

18. A device for molding a prefabricated section configured to form and enclose a part of a building, said device comprising jig means which form a mold in which said section is cast, said jig means having displaceable outer jigs including a bottom jig and at least two side jigs adapted to cast walls of the section and at least one displaceable inner jig whereby said molded section is horizontally releasable from the jig means, said inner jig including means for cooperating with said bottom jig to form the bottom of said section, said device including a conveyor with which said section can be displaced out of the mold enclosed by said jig means in a direction which is substantially perpendicular to the direction of displacement of said inner jig and said side jigs.

19. A device as claimed in claim 18, wherein said section has, in horizontal plan view, longer and shorter

sides, said conveyor defining a path extending at least substantially parallel to said longer sides of said section.

20. A device for molding a prefabricated section configured to form and enclose a part of a building, said device comprising jig means which form a mold in which said section is cast, said jig means having displaceable jigs including outer jigs and at least one inner jig, said jigs adapted to form a floor and at least two vertical walls of the sections, displacement means for said outer jigs and supporting structure for horizontally displacing said inner jig as a whole whereby said inner jig is releasable out of the molded section and said molded section is releasable from the jig means, said device including a conveyor which defines a path extending transversely to the direction of displacement of said inner jig and at least one outer jig supporting members mounted in said device adjacent said displaceable jigs whereby the section can be displaced out of the mold enclosed by said jig means over the conveyor path from said jig means.

21. A factory for manufacturing prefabricated concrete sections for forming at least part of a building, said factory comprising a device for the molding of said sections and having jig means for forming a mold which includes a plurality of displaceable inner and outer jigs which are adapted to mold a bottom side, at least two vertical walls and a top side of said section, there being at least one horizontally movable inner jig within which each of said sections is cast, said jig means including at least, two supporting beams to support at least partly the section molded in said jigs means, a conveyor being located on one side of said device and a conveyor path being formed by further supporting beams joining the first said supporting beams, said conveyor including a draw beam extending along one of said further supporting beams, said draw beam being coupled with driving means to convey said section along said supporting beams.

22. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose a part of said building whereby said section includes a bottom side, vertical walls disposed at a substantial angle relative to each other and an upper side, said device comprising jig means which form a mold enclosure in which said section is cast with the bottom and upper sides in horizontal positions and with said walls in vertical positions, said jig means having a plurality of jigs for casting said bottom and upper sides and said walls each of which is displaceable whereby said molded section is releasable from the device, at least one of said jig means forming a bottom jig on which said bottom side is castable with ribs on its lower side parallel to the longer sides of the section, said bottom jig being displaceable transverse to the direction in which the other of said jigs are displaceable, said device including supporting members defining a path below the bottom side of said section and parallel to and substantially below said ribs, whereby said section can be displaced out of the mold enclosed by said jig means over the supporting members.

23. A device for molding a prefabricated section of a building in which said section encloses at least part of the space of the building, said device including an inner jig and an outer side jig, means for displacing said inner jig and said outer side jig in the same direction horizontally by an amount at least equal to the width of said

section for releasing the section molded in said device, a movable draw member mounted on said device asymmetrically beneath the section being molded with respect to the direction of drawing, said draw member being connected to a coupling member connected to said section whereby said section can be moved in a direction transverse to the direction of movement of said inner jig from the mold formed by said device.

24. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose a part of said building whereby said section includes a bottom side, at least two walls and an upper side, said device comprising jig means for forming a section in which said section is cast with said bottom side and said upper side in horizontal positions and said walls in vertical positions, said jig means having jigs each of which is displaceable whereby said molded section is releasable from the device, means for displacing at least two of said jig means defining both sides of one of said walls as a whole over a distance equal to at least its width dimensions and at least one of said jig means forming a bottom jig on which said bottom side is castable with ribs on its lower side parallel to the longer sides of the section, said device including supporting members in the lower part of the device, said supporting members extending out of the mold enclosed by said jigs and defining a path extending parallel to the longer sides of the section, whereby the section can be displaced out of the mold over said supporting members.

25. A device for molding a prefabricated section forming at least part of a building, said section being configured to enclose a part of said building, said device comprising jig means forming a mold in which said section is cast, said jig means having a bottom jig on which a bottom for said section is cast, and an inner jig connected to a supporting structure, said supporting structure being situated outside said bottom jig in such a way that said inner jig is extending substantially horizontally out of said supporting structure over said bottom jig at a distance above the same so as to be able to cast said bottom below said inner jig, said jig means including displaceable wall jigs whereby at least two walls are cast between said inner jig and said wall jigs, at least one wall jig being extendable in the same direction as said inner jig, supporting members mounted in said device adjacent said bottom jig whereby said section is displaceable out of the mold enclosed by said jig means over said supporting members in a direction transverse to the direction of extension of said inner jig.

26. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose a part of said building whereby said section includes a bottom side, at least two walls and an upper side, said device comprising jig means for forming a section in which said section is cast with said bottom side and said upper side in horizontal positions, said jig means having jigs each of which is displaceable whereby said molded section is releasable from the device, means for displacing at least two of said jig means as a whole in a direction transverse to the longer sides of said section, at least one of said jig means forming a bottom jig on which said bottom side is castable with ribs on its lower side parallel to the longer sides of the section, said device including supporting members in

the lower part of the device, said supporting members extending out of the mold enclosed by said jigs and defining a path extending parallel to the longer sides of the section, whereby the section can be displaced out of the mold over said supporting members.

27. A device for molding a prefabricated section forming at least part of a building, said section being configured to enclose a part of said building, said device comprising jig means forming a mold in which said section is cast, said jig means having a bottom jig on which a bottom for said section is cast, and an inner jig connected to a supporting structure, said supporting structure being situated outside said bottom jig in such a way that said inner jig is extending substantially horizontally out of said supporting structure over said bottom jig at a distance above the same so as to be able to cast said bottom below said inner jig, said jig means including displaceable wall jigs whereby at least two walls are cast between said inner jig and said wall jigs, supporting members mounted in said device adjacent said bottom jig whereby said section is bearing on said supporting members during and after displacing said inner and outer jigs out of the molding structure over a distance at least equal to at least the width of said section, said section being removable by said supporting members out of the molding structure.

28. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose part of said building whereby said section includes a bottom side, at least two spaced apart vertical walls and an upper side, said device comprising jig means which form a mold enclosure in which said section is cast with said bottom and upper sides in horizontal positions and with said vertical walls in positions perpendicular to said bottom and top sides, said jig means having a plurality of jigs for casting said bot-

tom and upper sides and said vertical walls each of which is displaceable whereby said molded section is releasable from the device, at least one of said jig means forming a bottom jig on which said bottom side is castable with ribs on its lower side parallel to the longer side of the section, said bottom jig being displaceable transverse to the direction in which the other of said jigs are displaceable, said device including supporting means defining a path below the bottom side of said section and parallel to and substantially below said ribs, whereby said section can be displaced out of the mold enclosed by said jig means over the supporting members.

29. A device for molding a prefabricated section forming at least part of a building and having, in plan view, longer and shorter sides, said section being configured to enclose a part of said building whereby said section includes a bottom side, at least two walls, and an upper side, said device comprising a jig means for forming a section in which said section is cast with said bottom and upper sides in horizontal positions and with said walls in positions perpendicular to said bottom and upper sides, said jig means having jigs each of which is displaceable whereby said molded section is releasable from the device, means for displacing at least two of said jig means defining sides of both of said walls as a whole over a distance equal to at least the width dimension of the section and at least one of said jig means forming a bottom jig on which said bottom side is castable with ribs on its lower side parallel to the longer sides of said section, said device including supporting members in the lower part of the device, said supporting members extending out of the mold enclosed by said jigs and defining a path extending parallel to the longer sides of said section, whereby said section can be displaced out of the mold over said supporting members.

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