Dec. 1, 1959 R. W. WEIDLER 2,915,150

BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

Filed Aug. 19, 1955 5 Sheets-Sheet 1

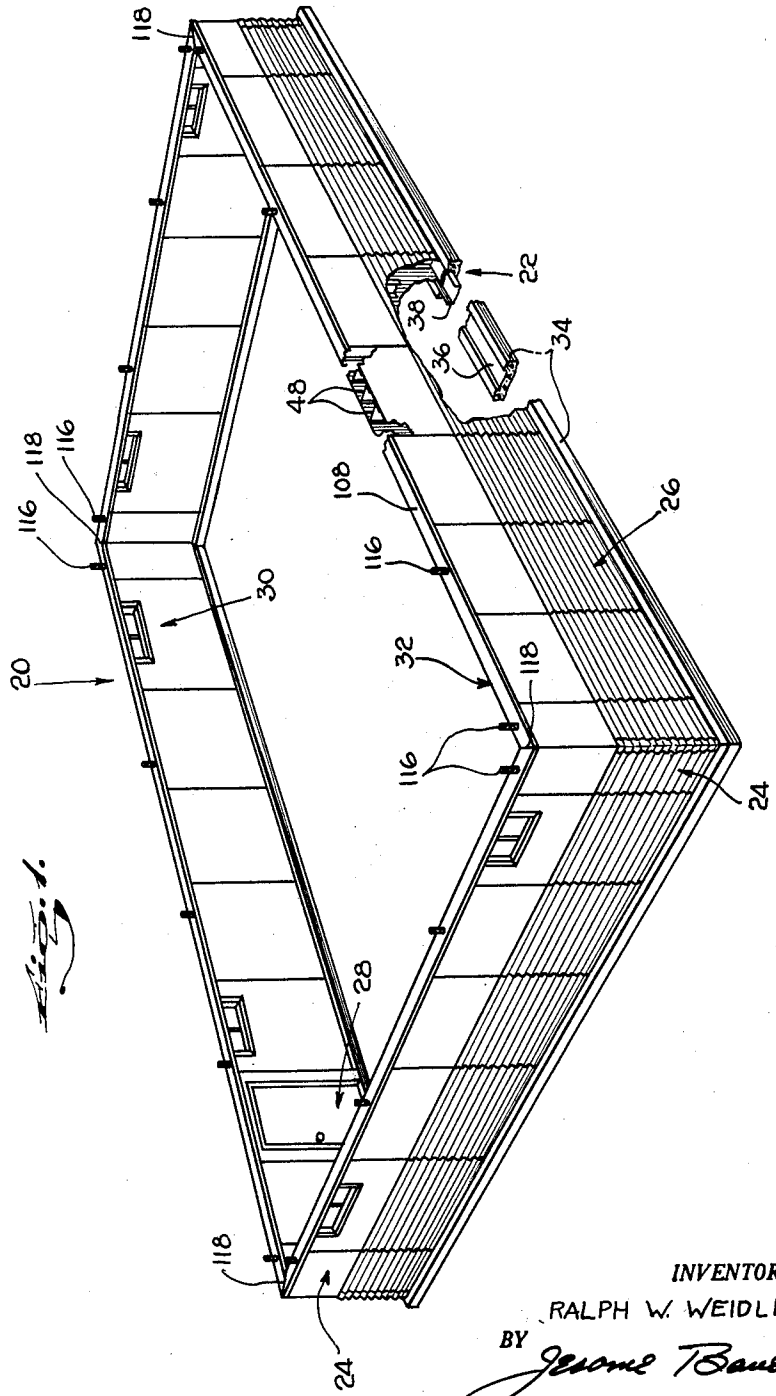


Fig. 1.

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BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

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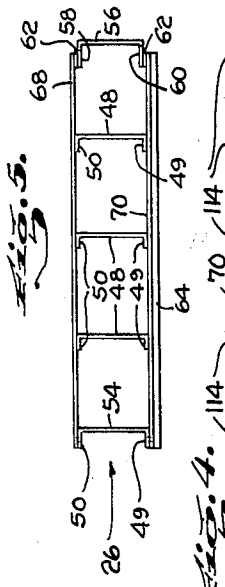


Fig. 5.

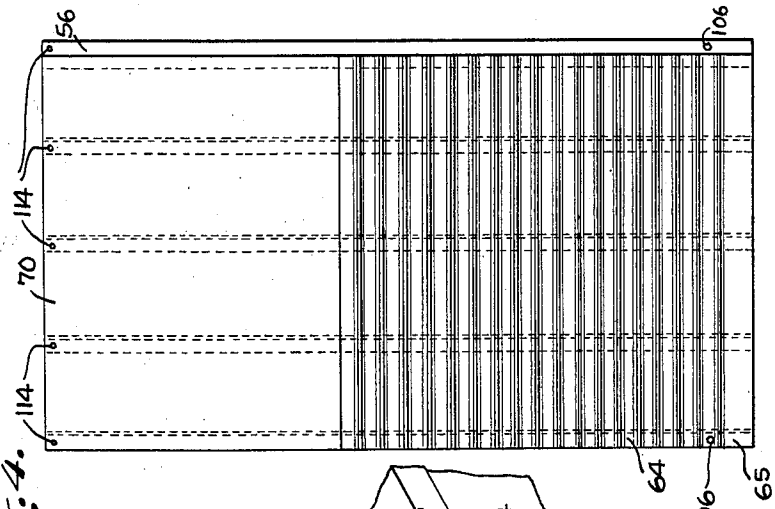


Fig. 4.

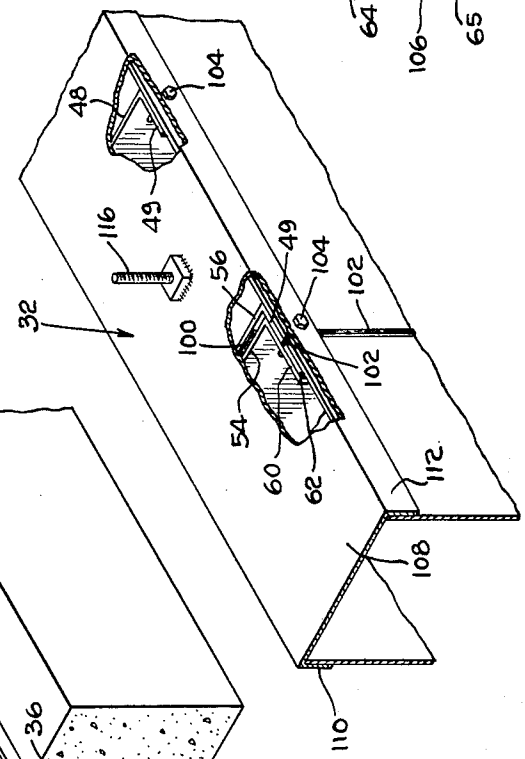


Fig. 3.

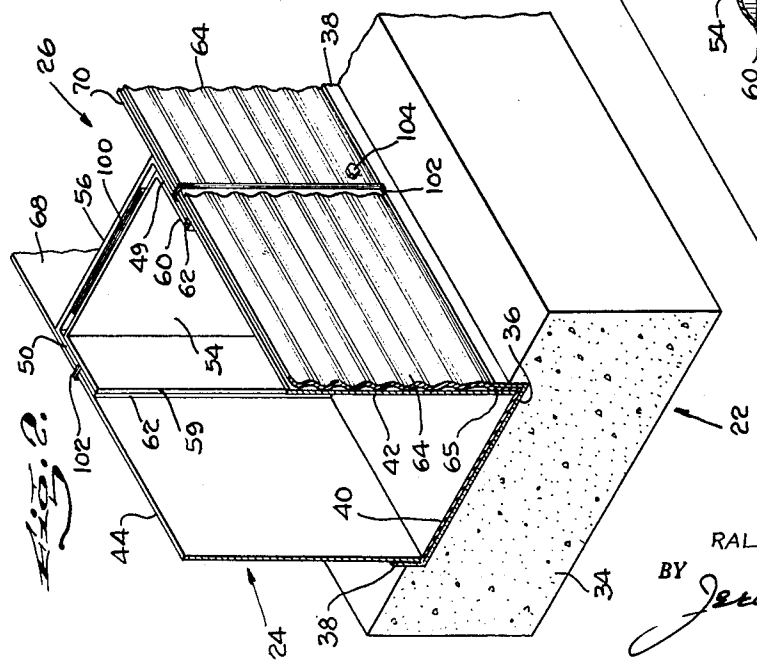


Fig. 2.

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BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

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Fig. 7.

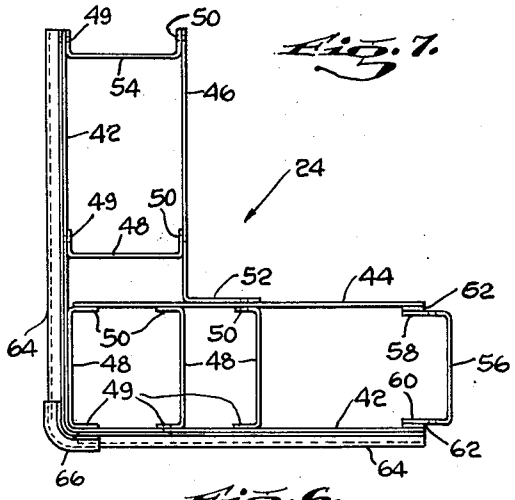


Fig. 9.

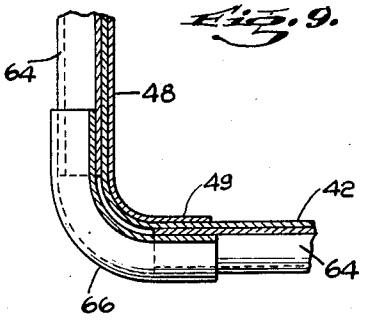


Fig. 6.

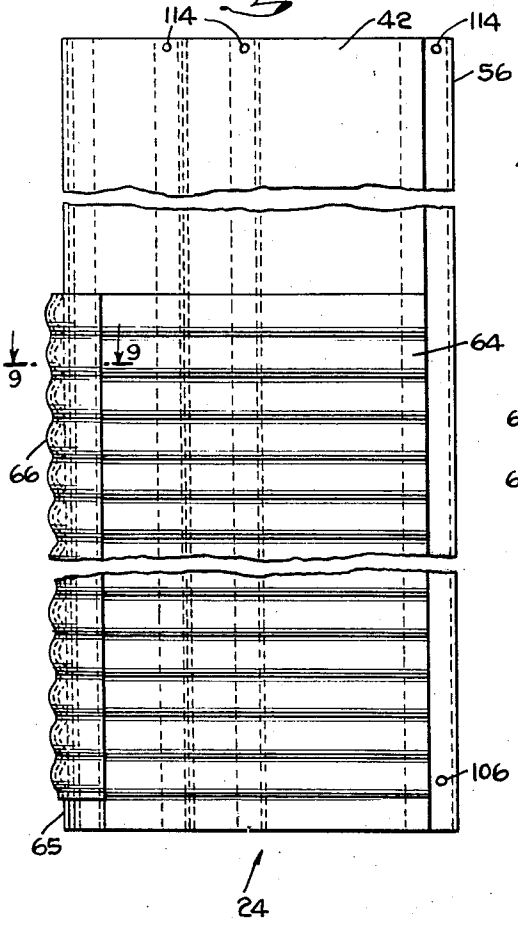
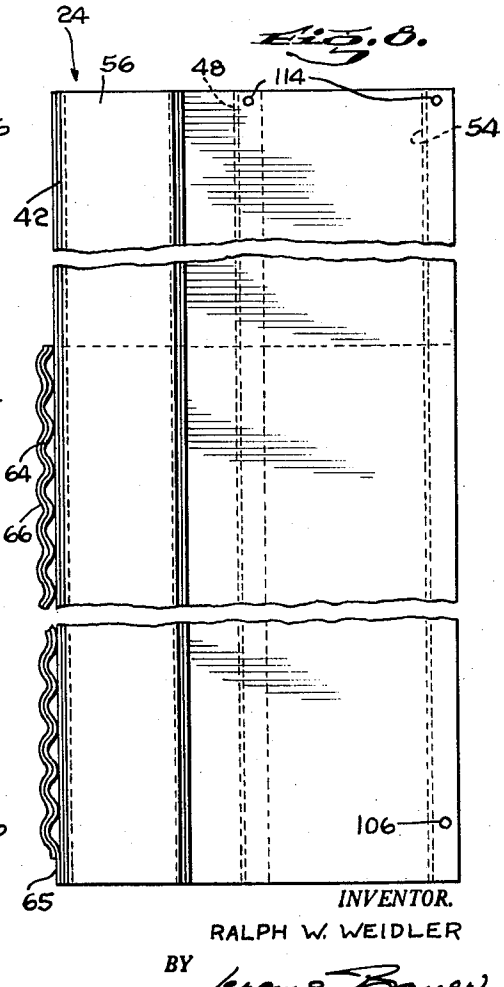


Fig. 8.



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BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

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Fig. 11.

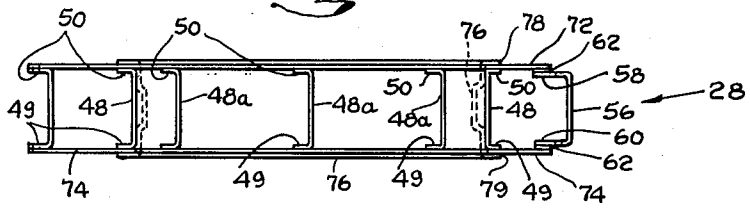


Fig. 10.

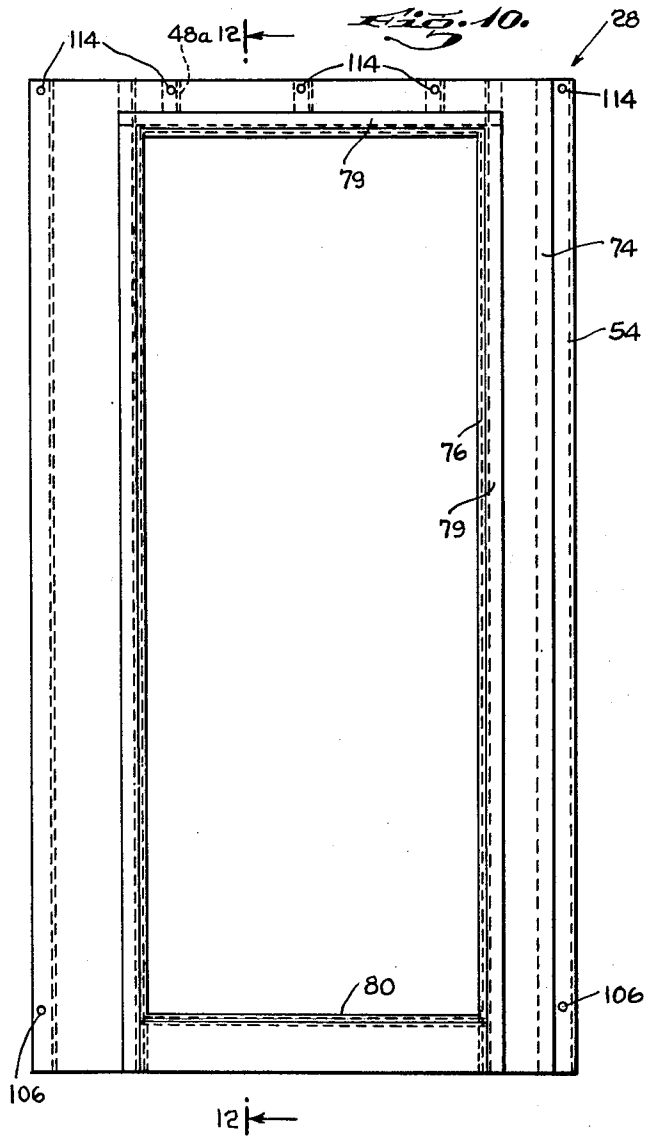
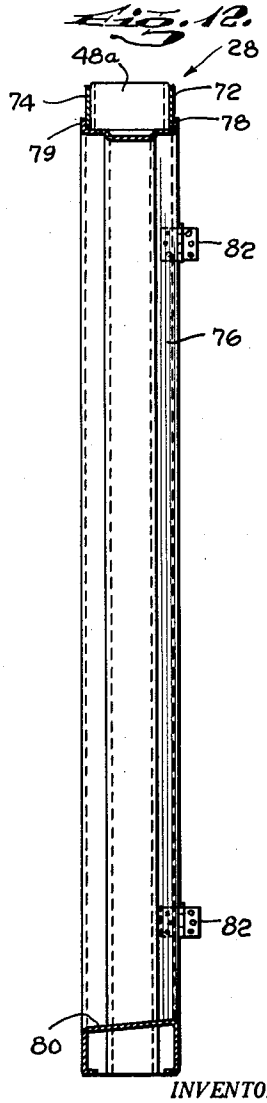


Fig. 12.



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BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

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Fig. 14

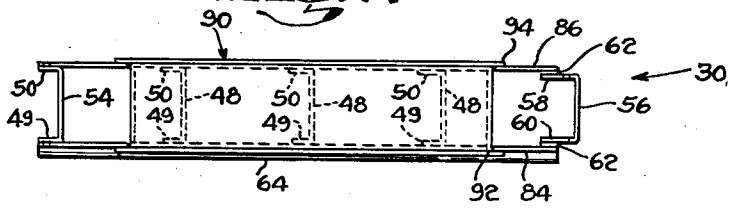


Fig. 13.

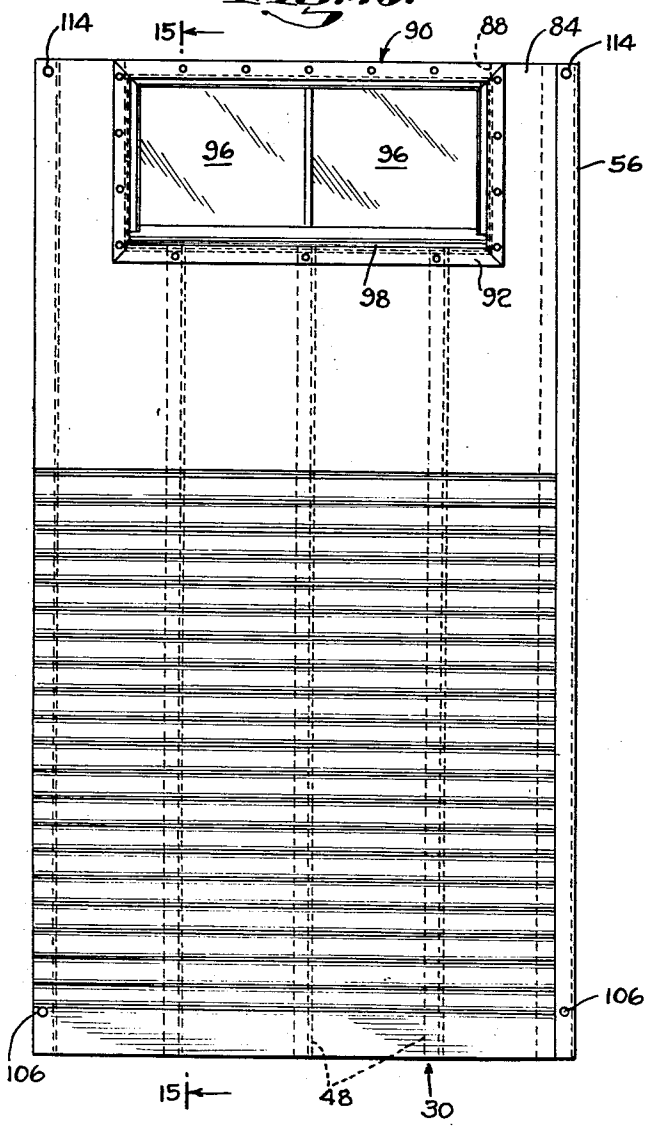
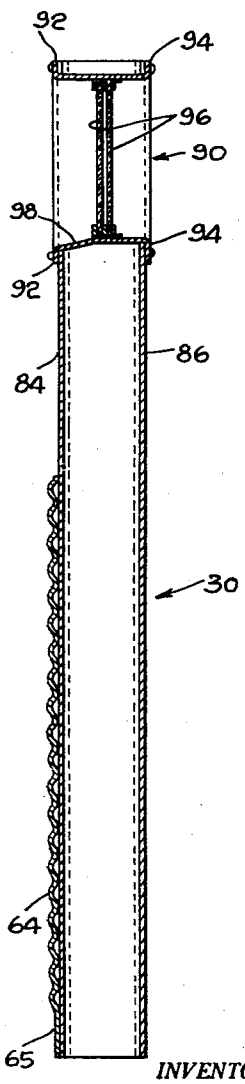


Fig. 15.



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United States Patent Office 2,915,150 Patented Dec. 1, 1959

2,915,150

BASEMENT ASSEMBLY AND PREFABRICATED STRUCTURAL UNITS THEREFOR

Ralph W. Weidler, Yardley, Pa.

Application August 19, 1955, Serial No. 529,396

8 Claims. (Cl. 189—34)

This invention relates to a novel basement construction, and more particularly to a basement assembly employing prefabricated structural sections or units.

The building industry, having been motivated by the need for constructions which will lend themselves to inexpensive production techniques has placed much stress upon prefabricated structures. Because the cooperating sections of prefabricated structures may be built in factories having mass production facilities, the cost of a building employing such prefabricated techniques is materially reduced. Thus far, however, prefabricated construction techniques have been employed, in the main, in those portions of the structures which are above the ground.

The present invention relates to a novel prefabricated construction the desideratum of which is to provide a structure capable of serving as a basement and foundation for a building, and adapted to be assembled in position to extend either partially or entirely below ground.

It is an object of the invention to provide a basement construction employing prefabricated structures capable of being assembled quickly and easily at the building site; to provide a completed basement assembly which eliminates, to a great extent, the expensive, time consuming concrete basements heretofore customary; to reduce the use of expensive concrete molds, skilled workmen to prepare the molds, and the drying period that is normally required to harden the concrete. As a consequence, a feature of the invention resides in the ability to construct the basement, substantially unhampered by weather conditions, by employing the novel prefabricated structures of the invention.

Another object of the invention is to provide a basement construction of prefabricated sections or units which join and cooperate to afford unbroken horizontal, vertical and lateral support for the building thereabove.

Still another object of the invention is to provide a novel assembled basement, constructed of prefabricated structures, which is termite-proof, fire-proof, resistant to lateral shock blasts and capable of providing a foundation, for the building thereabove, which is substantially unaffected by minor vertical shifting or erosion of the soil therebelow.

A further object of the invention is to provide prefabricated means for erecting low cost basements with unskilled labor.

Other and further objects of my invention reside in the structure and arrangement hereinafter more fully described with reference to the accompanying drawings in which:

Fig. 1 is a side perspective view of the novel prefabricated basement assembly constructed in accordance with the teaching of the invention with portions thereof being broken away.

Fig. 2 is a side perspective view of a lower portion of the basement assembly shown in Fig. 1, including the footing member.

Fig. 3 is a top perspective view of the cap channel

forming part of the basement assembly, with portions thereof cut away to show details of the prefabricated units or sections therebeneath.

Fig. 4 is a front elevation of a prefabricated basic intermediate section forming a part of the basement assembly and constructed in accordance with the teaching of the invention.

Fig. 5 is a top view of the prefabricated basic intermediate section shown in Fig. 4.

Fig. 6 is a front elevation of a prefabricated corner section or unit forming a part of the basement assembly and constructed in accordance with the teaching of the invention.

Fig. 7 is a top view of the prefabricated corner section or unit shown in Fig. 6.

Fig. 8 is a side elevational view of the prefabricated corner section or unit shown in Fig. 6.

Fig. 9 is a sectional view of the prefabricated corner section or unit shown in Fig. 6 taken substantially along lines 9—9.

Fig. 10 is a front elevation of a prefabricated door section or unit capable of forming a part of the basement assembly and constructed in accordance with the teaching of the invention.

Fig. 11 is a top view of the prefabricated door section or unit shown in Fig. 10.

Fig. 12 is a sectional view of the prefabricated door section or unit shown in Fig. 10 and as taken along lines 12—12.

Fig. 13 is a front elevation of a prefabricated window section or unit capable of forming a part of the basement assembly and constructed according to the teaching of the invention.

Fig. 14 is a top view of the prefabricated window section or unit shown in Fig. 13, and

Fig. 15 is a sectional side view of the prefabricated window section shown in Fig. 13 and as taken along lines 15—15.

Referring now to the drawings, the basement generally identified by the numeral 20 in Fig. 1, embodies a construction pursuant to the invention, the same being constructed or assembled of factory prefabricated structural units which may be put together in the field by relatively unskilled labor in a minimum of time. The particular architectural plan selected for illustration is quite simple, and of course, subject to variation within the practical limits of the prefabricated sections or units employed for effecting the purposes of the invention.

In general, the construction of the basement assembly indicated by the numeral 20 in Fig. 1, comprises a foundation support 22 on which are mounted a plurality of prefabricated sections or units. Defining the corners of the basement construction 20 are prefabricated corner sections or units generally identified by the numeral 24. The prefabricated corner units 24 cooperate with adjoining prefabricated intermediate sections or units to form the walls of the basement construction.

Certain of the intermediate sections or units provide a wall of uninterrupted detail. Such sections are termed, for the benefit of description, basic intermediate sections or units and are identified by the numeral 26. At times, it may be desired that doors and windows be included in the details of the basement construction 20. In that event, one of the prefabricated intermediate sections 26 may include a door, and as such, it will be identified as a prefabricated door section or unit 28, while any one of the intermediate sections which includes a window, will be identified as a prefabricated window unit or section 30.

The construction thus far described in general terms, is covered or capped by a capping structure generally identified as 32, which, when later discussed in detail,

provides a foundation and support for the building structure to be constructed thereabove.

As the description proceeds, the structures set forth in a general manner above, will be described in detail in order that their cooperating functions may be more clearly enumerated and their novel details of construction noted.

The support means 22 (see Figs. 1 and 2), comprises a concrete footing 34 which may be formed by pouring concrete into a footing mold, or if it is desired to obviate the use of a special mold, by providing a footing trench excavated from the ground, and into which the concrete may be poured, the excavated trench thus serving as a footing mold.

As can thus be seen from Figs. 1 and 2, the footing 34 is materially shallower in height and relatively narrower in width than the poured concrete basement footings commonly in use. Formed in the footing 34, is a continuous channel-shaped groove 36, which serves as a mounting or guide for channel-shaped seat members 38 adapted to fit therein.

Each of the channel-shaped seat members 38 may be either a single continuous member, or formed as the result of a number of channel-shaped members welded together either at the factory or at the building site. In either event, each member 38 extends for the full length of each of the respective channel-shaped grooves 36 within which it is mounted. Although it will be made clearer as the description proceeds, the purpose of the seat members 38 is to provide a seat or guide for a plurality of the aforementioned prefabricated sections which are assembled therein and which, when combined, make up the walls of the basement 20.

The support or foundation 22 also includes a fluid-tight, water resistant mastic sealer 40 which is positioned in the seat member 38 before the prefabricated sections 24 to 30 are seated therein. The width of the sealing means 40 is the same as that of the base of the seat 38, and extends for the full length thereof.

The combination of structures thus far described provides an adequate footing and secure support and seat for the later assembled prefabricated sections 24 to 30. This type of foundation and support is substantially unaffected by minor vertical soil erosion or "sinking," since the combined seats of the footing 36 and the continuous seat member 38 provide sufficient vertical strength and support to overcome the minor shearing forces which normally affect a concrete basement foundation.

When the sub-soil is unyielding it may be desired to eliminate the use of the separate seat member 38. If so, the prefabricated sections or units 24 to 30, later to be described in detail, may seat directly within the groove 36 of the footing 34, after the mastic or fluid-resistant sealer 40, has been properly positioned therein. Thus the channel-shaped footing groove 36 may also serve directly as a seat and guide for the later assembled prefabricated sections or units 24 to 30.

Once the support 22 has been laid and properly completed with the mastic sealer 40 positioned therein, the first prefabricated section or unit to be seated thereon is the corner section or unit 24. Details of the prefabricated corner section 24 are shown in Figs. 6 to 9 inclusive, and reference is now made thereto.

The prefabricated corner section 24 comprises an outer surface which includes an outer plate 42 bent intermediate its ends to form two side walls (not numbered) of a corner. The two sides of the outer plate 42 are in parallelism with two inner plates 44 and 46 which cooperate to form an inner surface of the corner section 24. The first inner plate 44 is secured parallel relative to one of the side walls of the outer surface plate 42 by vertically extending channel-shaped stiffeners 48 which may be welded at one of their legs 49 to the backside of the outer surface 42, and at the other of their legs 50, to a corresponding inner face of the inner surface plate 44.

The other inner plate 46 cooperating with the inner plate 44 to make up the inner surface of the prefabricated corner section 24, is similarly secured in parallel relationship relative to the other side wall of the outer surface plate 42, by further stiffeners 48 having legs 49 and 50. The inner plate 46 has a bent marginal end 52 which is secured to the inner plate 44 at their point of jointure, thus to complete the inner surface of the corner section 24.

As best seen in Figs. 6 and 8, the stiffeners 48 extend vertically for the full height of the surface plates 42, 44 and 46, and are relatively spaced horizontally each from the other to provide adequate periodic support between the surfaces. Included in the periodically spaced stiffener construction between the outer and inner surfaces, are end stiffeners 54 and 56 each facing in the same direction.

The end stiffener 54 serves as a female joining member, while the opposite end stiffener 56 serves as a male joining member in a manner which will be presently described. The female joining member 54 is exactly the same as the remaining stiffeners 48 of which it forms a part. It is connected at its one leg 50 to the inner surface plate 46, and at its other leg 49, to the outer surface plate 42, thus providing support at its respective end of the prefabricated corner section 24.

It will be noted from Fig. 7 that the edges of the legs 49 and 50 of the female stiffener 54, are in alignment with the corresponding edges of the inner and outer plates 42 and 46, while its interconnecting body portion (not numbered) extends inwardly from the aligned edges of the plates 42, 46.

The male stiffener or joining member 56, varies slightly in structure from the remaining stiffeners 48 and the female joining stiffener 54. The width of the interconnecting body portion (not numbered) of the male joining member 56 is slightly less than the width between the legs 49 and 50 of the female joining member 54 at the opposite end of the prefabricated section 24. As a consequence, its legs 58 and 60 are slightly longer in length than the previously described legs 49 and 50.

As seen in Fig. 7, the interconnecting body portion of the male joining member or stiffener 56, extends outwardly beyond its respective end of the prefabricated section 24, a distance substantially equal to the depth that the interconnecting body portion of the opposite joining member 54 extends from the aligned edge of its legs 49 and 50, for a purpose which will become obvious as the description continues. Inasmuch as the interconnecting body portion of the male joining member 56 is narrower in width than the remaining stiffeners of the prefabricated corner section 24, the space between its respective legs 58 and 60 and the adjacent plates 44 and 42 are taken up by shims 62.

The shims 62 are secured to the inside faces of the plates 42 and 44. In turn, the legs 58 and 60 of the male joining members 56 are secured to the shims with the interconnecting body portion of the male joining member 56 extending outwardly beyond the edges of the outer and inner surface forming plates 42 and 44, as previously described.

Secured to the outer face of the outer surface plate 42, are corrugated sheet members 64, each of which extends from the end of its respective side wall of the plate 42, centrally toward each other and toward the bend of the plate, ending just short of meeting each other at the apex of the bend. The corrugated sheet members 64, having a flat portion 65, extend vertically along each sidewall 42 beginning at the bottom and extending to a height which will be equal to or slightly higher than the back-filled ground later moved back into position alongside the basement construction 20.

In order to cover the slight space between the facing ends of the corrugated sheet members 64, there is provided

a curved corrugated bridging member **66**. The corrugated bridging member **66** is formed with a radius equal to the radius of the bend of the outer surface plate **42** to evenly bridge both corrugated sheet members **64** secured thereto.

It will be noted from Figs. 6, 7 and 8 that the lower end of the bridging corrugated member **66** falls short of, and does not extend completely to the bottom of the prefabricated corner section **24** as do the members **64**. Thus, when the section **24** is set into the corner of the supporting foundation **22** on top of the mastic sealing strip **40**, the corrugated side members **64** will seat within the channel-shaped seat member **38**, while the lower end of the bridging, corrugated member **66** will sit on top of the channel member **38** and bridge a corner portion of the concrete supporting footing **34**.

It is contemplated however, that the side wall corrugated members **64** may, at times, also fall short of the bottom of the corner section **24** a distance equal to the height of the legs of the seat member **38** by eliminating the flat **65**. In that case, the section will seat within the member **38** with the corrugated side members **64** and the bridging member **66** beginning at the height of the leg of the seat member. The corrugations of the corrugated members extend widthwise or horizontally of the section **24** to provide support in a lateral direction and in opposition to the force of the ground later backfilled thereagainst. The vertical stiffeners **48**, and the stiffeners **54** and **56** provide additional lateral support between the inner and outer surface plates, and vertical and horizontal support for the walls of the basement construction **20**.

The basic intermediate section or unit generally identified by the numeral **26** comprises parallel inner and outer surface plates **68** and **70** respectively. The inner and outer surface plates **68** and **70** are retained in their parallel relationship and supported by stiffeners **48**, **54** and **56**. The stiffeners **48**, spaced horizontally from each other, are positioned intermediate the ends of the plates **68** and **70**. They are secured to the plate **70** at their legs **49** and to the inner plate **68** at their legs **50**.

Included in the stiffener construction are the female and male stiffener joining members **54** and **56** respectively, and each of which faces in the same direction. As the description of the basic intermediate section **26** proceeds, it will be recognized that the female and male joining members are of the same construction as the corresponding female and male joining members disclosed in the prefabricated corner section **24**.

That is, the female joining member **54**, being of the same construction as the intermediate stiffeners **48**, is secured in alignment with the ends of the inner and outer plates **68** and **70** respectively. The joining member **54** is secured to the inner face of the outer surface plate **70** at the leg **49**, and to the corresponding inner face of the inner surface plate **68** at its leg **50**. The body portion of the joining member **54** extends inwardly from its respective ends of the plates **68** and **70** to form a female joining member.

At the opposite end of the section **26** the male joining member **56**, also of the same construction as the male joining member of the prefabricated corner section **24**, has an interconnecting body portion (not numbered), narrower than the female joining member **54**, as a consequence, its legs **58** and **60** are longer in length than the legs **49** and **50** of the remaining stiffeners **48** and **54**. thus, in order to secure the joining member **56** to the insides of the plates **68** and **70**, shims **62** are positioned between the plates and the legs **58** and **60**.

The shims **62** are thus secured to the inner and outer surface plates **68** and **70**, and in turn, the legs **58** and **60** of the male joining member **56** are secured thereto.

As was the case in the prefabricated corner section **24**, the male joining member **56** in the prefabricated basic intermediate section **26**, has its interconnecting body portion extending outwardly beyond its respective ends of the inner and outer surface plates **68** and **70**, a distance equal to the depth which the interconnecting body portion of the female joining member **54** extends inwardly from its respective end of the prefabricated section **26**.

Secured to the outer face of the outer surface plate **70** is a corrugated member **64**. Member **64**, like the previously described corrugated members secured to the prefabricated corner section **24**, has a flat portion **65** (Fig. 2) to extend into seat **38** while the remainder of member **64** covers a portion of the outer surface plate **70**. Its corrugations, it will be noted, extend horizontally, or widthwise of the prefabricated basic intermediate section **26** to provide forces acting laterally of the section in opposition to the lateral forces exerted by the ground later backfilled against the section and against the whole basement construction **20**.

As previously described, here again, the corrugations **64** need not extend to the full or lowest depth of the outer surface plate **70**, but rather may start at a height from the bottom of this plate equal to the height of the legs of the channel-shaped seat **38** by eliminating the flat **65**. On the other hand, it is within the contemplation of the invention that the corrugated member **64** may have a lower flat surface **65**, such as is better seen in Fig. 2, which is adapted to seat within the upstanding legs of the channel-shaped seat member **38** and on top of the mastic sealing strip **40**.

The prefabricated intermediate section, including a door and door opening generally identified by the numeral **28** and better known as a prefabricated door section or unit, is shown in detail in Figs. 10, 11 and 12. The prefabricated door section **28** comprises inner and outer surface plates **72** and **74** respectively. The inner and outer surface plates **72** and **74** are spaced in parallel relationship and supported in this relationship by a stiffener construction including a plurality of vertically spaced stiffeners **48** and **48***a*.

The stiffeners **48** and **48***a* are of the same channel-shaped construction as employed in both of the previously described prefabricated corner and basic intermediate sections **24** and **26** respectively. Certain of the stiffeners **48** extend vertically for the full length of the spaced parallel inner and outer surface plates **72** and **74**, while certain others of them, **48***a*, extend for only a short vertical distance between the two surface plates for a reason to be described.

A door frame **76**, having inner and outer spaced marginal edges **78** and **79** respectively, is secured in the prefabricated door section **28** with the marginal edges disposed on the outer faces of the inner and outer surface plates **72** and **74**, in a manner which can best be seen in Fig. 12. The frame **76** may be secured to the plates **72** and **74** along its marginal edges **78** and **79** by welding or in any other well known manner.

At the bottom of the door frame **76** there is a step **80** which slopes in a direction from the inner surface plate **72** forwardly and downwardly toward the outer surface plate **74**. The step **80** may be formed as an integral part of the door frame **76**, or if desired, may be assembled to cooperate therewith in the position as shown in the drawings after the door frame has been assembled with its marginal edges **78** and **79** overlapping adjacent portions of the plates **72** and **74**.

Three short stiffeners, numbered **48***a*, forming a part of the previously mentioned stiffener construction, are positioned between the inner and outer surface plates **72** and **74**, and along the top portion of the door frame **76**. They provide periodic strengthening and support between the two surface plates **72** and **74** along the top of the frame **76**. The three short stiffeners **48***a* are secured to the plates **72** and **74** at their legs **49** and **50**.

The stiffeners **48** are positioned between the plates **72** and **74** within the outline of the marginal edges **78** of the door frame **76**. They also are secured to the two surface plates at their legs **49** and **50**. The stiffeners **54** and **56**,

facing in the same direction and at opposite ends of the section 28, constitute female and male joining means respectively for the prefabricated door section.

The female joining member 54 at the one end of the prefabricated section 28 is of the same channel-shaped construction as the stiffeners 48 and 48*a*. Its legs 49 and 50 are secured to the outer and inner plates 74 and 72 respectively and in alignment with their edges, to provide stiffening support thereat. The interconnecting body portion (not numbered) of the female joining member 54 is spaced inwardly from its respective end of the section.

At the other end of the section 28, the male joining member 56, being of the same construction as the male joining members described in the construction of the prefabricated sections 24 and 26, has an interconnecting body portion (not numbered) which is narrower in width than the remaining stiffeners 48, 48*a* and 54. The width of the body portion of the male joining member 56 is slightly less than the space between the legs 49 and 50 of the previously mentioned female joining members 54. As a consequence, its legs 58 and 60 are longer in length than the corresponding legs 49 and 50 of the remaining stiffeners.

Because the body portion of the male joining member 56 is narrower in width than the space between the two surface plates 72 and 74, shims 62 are secured therebetween. The male joining member 56, it will be noted, (Fig. 11), extends outwardly beyond its respective end of the section 28 a distance substantially equal to the length of the legs 49 and 50 of the female joining member 54 at the opposite end of the section.

Hinges 82 are shown secured to the door frame 76 (see Fig. 12). The hinges are adapted to be fixed to a swingable door (see Fig. 1), which may then be opened and closed in the frame 76. The sloping step 80, forming part of the frame 76 of the prefabricated door section 28, deflects and directs any fluid which may strike or lie thereupon, away from the inside surface plate 72 and away from the inside of the basement construction 20.

The prefabricated window section or unit 30, better seen in Figs. 13, 14 and 15, comprises an outer surface plate 84 and an inner surface plate 86. The outer and inner surface plates 84 and 86 are spaced from each other and secured in parallel relationship by a stiffener construction comprising a plurality of vertically disposed stiffeners 48, 54 and 56.

The stiffeners 48 extend vertically between the outer and inner surface plates for only a portion thereof, while the end stiffeners 54 and 56, each facing in the same direction, extend for the full vertical length of the section. Both the outer and inner surface plates have aligned openings 88 in which a window frame, generally identified by the numeral 90 is accommodated.

Window frame 90 has spaced outer and inner marginal edges 92 and 94. The spaced marginal edges of the frame 90 overlap the defining walls of the aligned openings 88 of both the outer and inner surface plates 84 and 86. They may be secured along their overlapping edges to the two surface plates by welding, or in any other well known manner.

The frame 90 includes two relatively slidable window panes 96 which are adapted to slide therein. However, inasmuch as the details of the panes do not form any specific part of the invention, it is contemplated that instead of slidable panes such as disclosed, there may be a swingable single window pane. At the lower portion of the frame 90 there is a sill 98 which, starting midway between the marginal edges 92 and 94, slopes downwardly in a direction away from the inner surface plate 86 toward the outer surface plate 84. The sloping sill 98 insures that any rain water or other liquid falling thereon or also against the window panes 96, will be directed away from the inside of the basement construction 20.

The shorter stiffeners 48 extend from the bottom of the section 30 up to the sill 98 of the window frame 90, are secured between the outer and inner surface plates 84 and 86 at their legs 49 and 50 respectively. The stiffeners 48 provide vertical support for the two surface plates 84 and 86 and also for the marginal edges of the window frame 90 accommodated in the aligned openings 88 therein.

The stiffener 54 at the one end of the prefabricated window section or unit 30, is secured in alignment with its respective end of the section, and to the outer and inner surface plates 84 and 86 at its legs 49 and 50 respectively. The stiffener 54 thus serves as a female joining member in the same manner as described in sections 24, 26 and 28. It is of the same channel-shaped construction as the shorter vertical stiffeners 48 and has its interconnecting body portion (not numbered) extending inwardly away from its respective end of the section.

The stiffener 56, at the opposite end of the section 30 comprises legs 60 and 58 having an interconnecting body portion (not numbered) narrower in width than the space between the legs 49 and 50 of the joining member 54. In order to secure the narrower male joining member 56 to the inner faces of the two surface plates 84 and 86, it is necessary to shim the space between its legs 58 and 60 with shims 62. The male joining member 56 is thus secured to its respective end of the section 30 by way of the shims 62, its narrowed interconnecting body portion extending outwardly beyond the end of the section.

Secured to the outer surface plate 84 is a corrugated member 64. Member 64, being like the previously described corrugated members secured to the prefabricated sections 24 and 26, has a flat lower portion 65 (Figs. 2 and 15) which is adapted to extend into the seat 38, while the remainder of the corrugations cover a portion of the plate 84 substantially equal to or greater than the height of the ground later to be backfilled against the basement assembly 20. It will be noted that the corrugations of the member 64 extend horizontally or widthwise of the section 30 to provide forces acting laterally of the section in opposition to the lateral forces of the backfilled ground.

As in the previously described sections, the corrugated member 64 need not extend to the fullest or lowest depth of the outer surface plate 84. It may start at a height from the bottom of this plate equal to the height of the legs of the channel-shaped seat 38 by eliminating the flat 65.

After the support foundation 22 has been laid with the mastic sealing strip 40 positioned within the seat member 38, a prefabricated corner section 24 is positioned in the support 22 at one corner thereof. The prefabricated corner section 24 thus defines a corner of the basement construction 20. As noted previously in the detailed description of the section 24, it may be so positioned within the seat member 38 with its corrugated surface 64 extending into the seat at 65, or, if the corrugated member 64 does not contain a flat portion 65, the corrugated member will begin where the guiding legs of the seat member 38 end. Once the corner section 24 is properly positioned in a corner of the support 22, the basement is assembled by building up the walls on each side of the corner section.

This is accomplished by placing an intermediate prefabricated basic section 26 adjacent to a side of the properly positioned corner section 24 as better seen in Figs. 1 and 2. The intermediate basic section adjoining the corner member will be so positioned with its male joining member 56 facing the female joining member 54 of the corner section 24, or, if the intermediate basic section is positioned on the other end of the corner section 24, with its female joining member 54 facing the male joining member 56 of the corner section.

The male and female joining members are thus intended to cooperate with each other whereby the interconnecting body portion of the male member fits between the legs 49 and 50 of the female joining member. The mating cooperation between the male and female joining members thus joins their respective sections together in adjacency.

Positioned between the interconnecting bodies of both

the female and male joining member 54 and 56 respectively, is a mastic or sealing strip 100 (see Figs. 2 and 3). The sealing strip 100 extends for a portion of the width of the interconnecting body portions of the joining members and vertically therebetween, starting at the mastic sealing strip 40 in the seat member 38, and extending upwardly to the end of the joint formed by the cooperating joining members. The intermediate prefabricated basic section 26 is spaced a short distance from the corrugated member 64 of the adjoining corner section 24 equal to the thickness of the mastic sealing strip 100. The space created between the adjacent adjoined ends of sections 24 and 26 is filled by a fluid resistant sealing member 102. The member 102 may also be a mastic strip which can extend for the full length of the adjoining sections.

After the intermediate prefabricated section 26 is moved into adjoining relationship with the corner section 24 as above described, the two sections are then secured together from relative movement by securing screws or bolts 104. The sections 24 and 26 are secured at their lower outer surfaces by extending a screw 104 through the cooperating legs 49 and 60 of adjoining stiffeners 54 and 56. The inner lower surface of the adjoined sections 24 and 26 are secured together by another screw 104 (not visible) passing through the cooperating legs 50 and 59 of the same adjoining stiffeners. The two securing screws 104 pass through sets of aligned holes 106 already provided in the lower portions of adjoining stiffener members 54 and 56 of the prefabricated sections 24 and 26.

Although just the two screws 104 are applied to secure the adjoined sections together, one each at the inner and outer surfaces thereof, it will be recognized that if it becomes necessary, more may be utilized along the length of adjoining stiffeners.

The walls of the basement 20 are completed by adding the desired number of intermediate prefabricated sections 26, 28 and 30 to the seat 38 according to the basement plan. Inasmuch as each prefabricated section has the same adjoining stiffener members 54 and 56 as the next adjacent section, they are placed into position in the seat 38 so that male and female joining members will cooperate to provide a joint therebetween as previously described.

Each joint between each adjoining prefabricated section will include the sealing means 100 and 102 to provide an air and fluid-tight connection therebetween. The addition of securing means 104 at the lower joined portions of the sections retain them from relative movement.

As each wall of the basement construction 20 is completed, it is capped with a structure previously identified by the numeral 32 (see Fig. 3). The capping structure 32 comprises channel-shaped members 108 similar in structure and dimensions to the seat member 38. Cap members 108 have two downwardly extending legs 110 and 112 which, when positioned to cover a completed wall of the basement construction, provide a top guide for the prefabricated sections to retain them in wall-straight alignment. The combination of the seat member 38 and the cap member 108 provide a secure guide for the wall forming adjoined prefabricated sections.

As each wall of the basement is completed, a cap 108 is mounted thereover. The caps are secured to the joined prefabricated sections therebeneath by additional securing means 104. The additional screws 104 extend through the legs 110 and 112 of the cap member 108 and into the holes 114 provided along the tops of each of the prefabricated sections.

It will be noted that the holes 114 are provided in the prefabricated sections in the stiffeners thereof, thus the cap member 108 is secured to the plurality of prefabricated sections therebeneath at the stiffeners thereof, namely, the stiffeners 48, 54 and 56 of sections 24 and 26; at the stiffeners 48, 48*a*, 54 and 56, if a prefabricated door section 28 is utilized in the basement construction, or, if a prefabricated window section 30 is employed at the stiffeners 54 and 56.

The cap structure 32 includes studs 116 which are secured, as by welding, to the body of the member 108 to extend upwardly therefrom. It will be recognized that the studs 116 afford an anchor means for the sill blocks of a building structure which is to be completed above the prefabricated basement 20.

Studs 116 forming a part of the capping structure 32, may be secured on the body of the member 108 at the factory if desired, or, they may be added thereto after the cap member is in place over its respective basement wall.

When all the cap members 108 are mounted in position over their respective walls, the mitered joints 118 (Fig. 1) above the corner sections 24, may be welded closed or filled with a sealing filler similar to the mastic members 100 and 102.

Before the ground is backfilled about the walls of the basement 20, a fluid sealing or water resistant material is placed over the outer surface of the walls thereof to eliminate any possibility of seepage. Material such as tar, may be brushed or sprayed thereon or a mastic sealer may be troweled or shot on. Oxidation within the sealed, joined prefabricated sections may be avoided by providing air holes in the inner surface of each section.

From the foregoing it will be clear that the disclosure presents a basement construction which, whether it extends completely below the level of the ground thereabout, or only partially therebelow, is weatherproof. Its combination of novel fluid-tightly joined prefabricated cooperating weather resistant, waterproof sections, eliminates seepage of the type which normally affects concrete or other similar porous structures. The disclosed cooperating prefabricated sections or units utilized therein, being simple in structure, light in weight, and therefore easily handled and managed, present, because of their unique details of construction, a unitary basement assembly which is materially stronger and more resistant to lateral, horizontal and vertical forces exerted thereon than hitherto known basement or sub-soil structures.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment thereof, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

I claim:

1. Prefabricated units for a basement assembly, each unit comprising spaced inner and outer surface plates, a male channel-shaped joint at one end of said unit, a female channel-shaped joint at the other end of said unit, said female joint having spaced channel legs secured in end alignment with one end of said spaced plates and with the body portion thereof extending inwardly of its respective end of said unit, said male joint having a body portion narrower in width than the space between said legs of said female member, the legs of said male joint being spaced from said spaced plates, take-up means between said legs of said male joint and said spaced plates to secure the former to the latter, the legs and body portion of said male joint being cooperable with the legs and body portion of said female joint of a next adjacent unit to join said units together with a space defined between the joining male and female body portions, strip sealing means secured in position by and between said spaced body portions of said cooperating male and female joints and extending for a portion of the width of said space therebetween and for the length thereof, a corrugated member mounted on said outer plate extending for the width thereof and for

a predetermined portion of the height thereof, the corrugations of said corrugated member extending horizontally of said unit sealing means between said corrugated members of adjacent sections, a footing including an upwardly facing channel shaped seat means in which said sections are seated, and sealing means in said seat means on which said sections are fluid tightly seated when the same are in said seat means.

2. A prefabricated basement assembly comprising in combination an elongated concrete footing having a channel-shaped groove extending the length thereof, a channel-shaped seat member in said groove extending for the length thereof, sealing means laid in said seat member extending for the width and length thereof and on which prefabricated basement sections are adapted to rest, a plurality of prefabricated open-ended basement sections each seated at their open ends in said seat member on said sealing means to be water tightly sealed thereby and retained in relative alignment by the sides of the channel-shape of said seat member, each of said prefabricated sections including parallel inner and outer surface plates and spaced stiffeners vertically disposed between said plates to retain the same in their parallel relationship, certain of said stiffeners comprising male and female joining means with the male of one of said prefabricated sections being adapted to fit within and form a joint with a female of an adjacent aligned prefabricated section, sealing means secured in position between the length and width of said joined male and female joints to seal the same and retained therebetween by said joint, corrugated support means secured to the outer surface of each of said sections to provide support therefor in a lateral direction, sealing means secured between said support means of adjacent prefabricated sections, cap means extending for the length of said aligned prefabricated sections along the tops thereof to retain the tops of said sections in said aligned relationship, means securing said cap means to said aligned sections, and sealing means covering said sections on the outside thereof to at least the height of ground backfilled thereagainst.

3. A prefabricated basement assembly comprising in combination, a concrete channel shaped footing, a channel shaped seat member in said footing, sealing means in said seat member, a plurality of open-ended prefabricated sections, said sections each seated in adjoining relationship in said sealing means in the seat member at their open ends, end positioned vertically disposed mating channel shaped male and female joining means including spaced legs on each of said sections cooperating to join the same, fluid tight seal means between said male and female joining means of said adjoining sections, cap means covering each of said sections, and securing means cooperating with said cap means and each of said joined sections at the legs of said mating joining means to secure the cap means and sections from relative movement.

4. A basement assembly comprising a plurality of prefabricated adjacent sections each of which comprise spaced inner and outer plates, corrugated members secured to said outer plates and having their corrugations extending horizontally thereof, a plurality of stiffeners supporting said plates in parallelism and positioned therebetween, one of said stiffeners having a pair of spaced legs each one of which is secured to one of said plates on a body spaced inwardly from the ends of the plates to form a female joining member, a second one of said stiffeners secured to said plates and having a body extending outwardly from the ends thereof to form a male joining member, said sections each being positioned with the body of their male joining member cooperating with the body of the female member of the next adjacent section, sealing means secured between said cooperating male and female joint members of adjacent sections and extending for a portion of the width of their respective cooperating bodies and vertically therebetween for the lengths thereof, sealing means between said corrugated members of the adjacent sections, an upwardly directed channel shaped seat for receipt of said sections therein, and sealing means in said channel shaped seat on which said sections are placed within said seat to define a water-tight seal between said seat and said sections therein.

5. In a basement assembled from a plurality of adjacent sections each of which comprises spaced facing inner and outer surface plates, a male joint at one end of each section, a female joint at the other end of each section, said female joint including a channel shaped member having its legs secured in end alignment with one end of said inner and outer plates and with the body portion thereof extending inwardly of its respective end of said section, said male joint including a channel shaped member having a body portion narrower in width than the space between said legs of said female member, the legs of said male joint being spaced from said plates, shims between said legs of said male joint and said plates to secure the former to the latter, the legs and body portion of said male joint being cooperable with the legs and body portion of the female joint to join adjacent sections, fluid sealing means positioned between and for a portion of the width of the body portions of said cooperating male and female joints and for the lengths thereof to seal the same fluid tightly, and corrugated members formed integral with the outer plates of each section to the height of the ground backfilled thereagainst, the corrugations of said members extending horizontally to form a reinforcing wall about said outer plates, sealing means between said corrugated members, a channel shaped footing, an upwardly directed channel shaped seat member in said footing, and sealing means in said seat member against which the joined adjacent sections seat fluid tightly when seated in said seat member.

6. In a basement assembly a channel shaped footing, an upwardly directed channel shaped seat member in said footing, sealing means in said seat member, a plurality of open-ended prefabricated corner and intermediate sections adjoining each other to define a basement, said sections each being seated in adjoining relationship on said sealing means in said seat member to be fluid tightly engaged therewith on their open ends, selected ones of said intermediate sections including a window, selected others of said intermediate sections including a door, each of said sections having stiffener means, certain of said stiffener means including male and female means to join said sections, cap means fully covering said sections, corrugated members formed integral with the outer surface of each section and having its corrugations extending horizontally thereof, securing means securing said sections and cap means together at said male and female joining means, and fluid tight sealing means between said corrugated members of adjacent sections.

7. In a basement assembly as in claim 6, said prefabricated corner section comprising spaced inner and outer parallel surfaces each having a basement corner forming bend, a plurality of stiffeners secured to and between said surfaces, said outer surface having a continuous plate bent intermediate its ends to form two walls, said inner surface including an inner plate spaced from one of said walls to certain of said stiffeners and a second inner plate spaced from the other of said walls by certain other of said stiffeners, said corrugated members including at least a corrugated member secured to each one of said two walls at the outside thereof, and a further corrugated member bridging said two corrugated members.

8. A basement construction comprising a footing having an upwardly facing channel shaped seat, sealing means in said seat, open ended prefabricated corner sections mounted in said seat against said sealing means at their open ends to form therewith a fluid-tightly sealed corner of the basement, prefabricated open-ended intermediate sections mounted in said seat on said sealing

means at their open ends to form therewith fluid-tight walls of the basement, each of said sections including and vertically disposed channel shaped stiffeners therein telescopically engageable and joining said sections together, cap means mounted over the tops of said sections to cover the same, corrugated members mounted on the outer surfaces of said sections and having the corrugations thereof extending horizontally of each section, means securing said sections and cap means together at said joining stiffeners, fluid sealing means between and extending for a portion of the width and for the lengths of said cooperating joining stiffeners to seal the same fluid tightly, and sealing means between said corrugated members of adjacent sections.

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