

May 26, 1936.

H. J. R. BARRETT

2,042,290

WALL CONSTRUCTION

Filed June 15, 1935

2 Sheets-Sheet 1

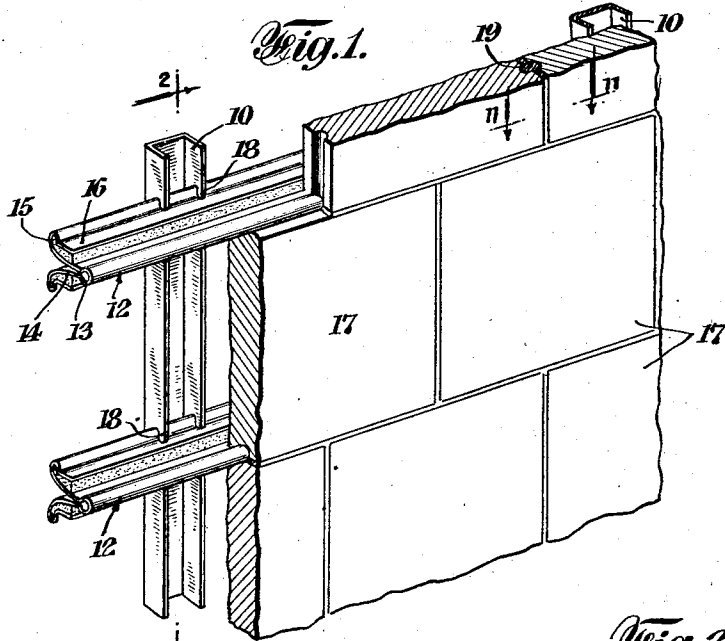


Fig. 2.

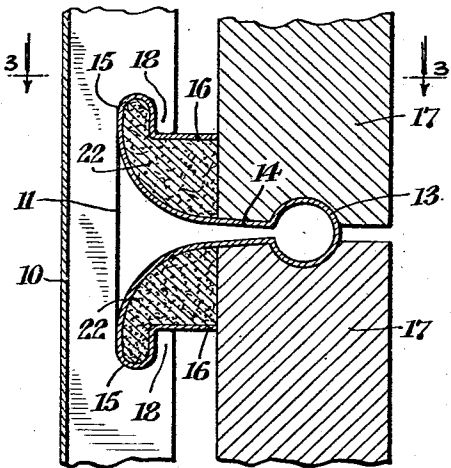


Fig. 3.

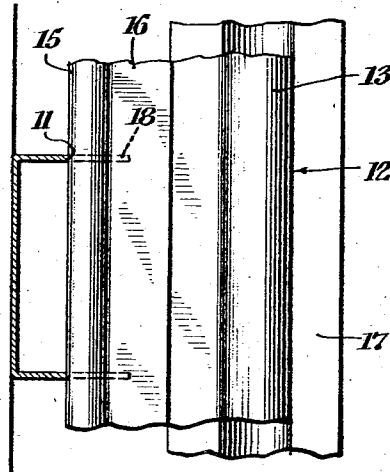


Fig. 13.

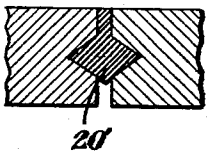


Fig. 14.

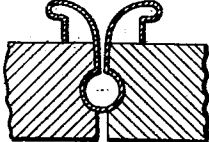


Fig. 15.

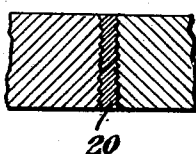
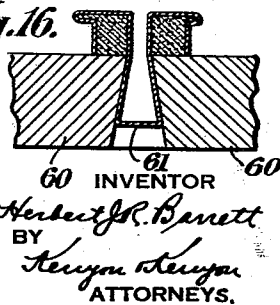


Fig. 16.



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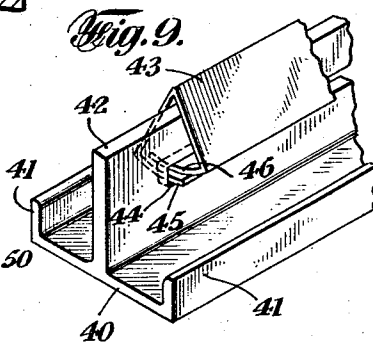
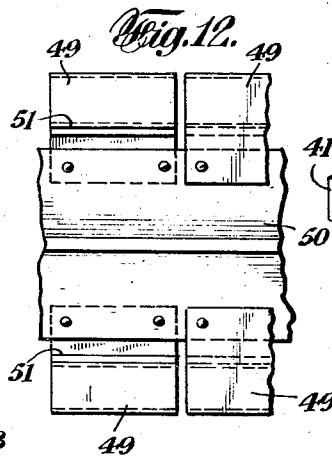
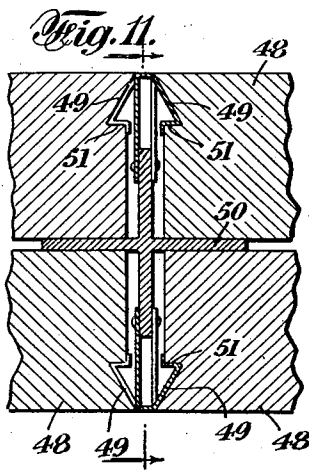
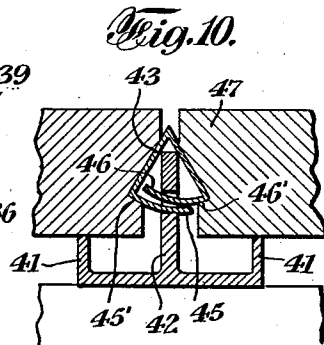
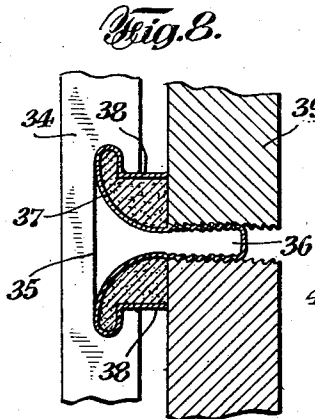
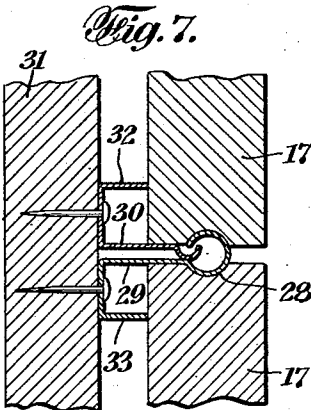
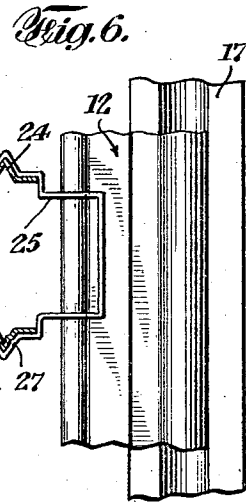
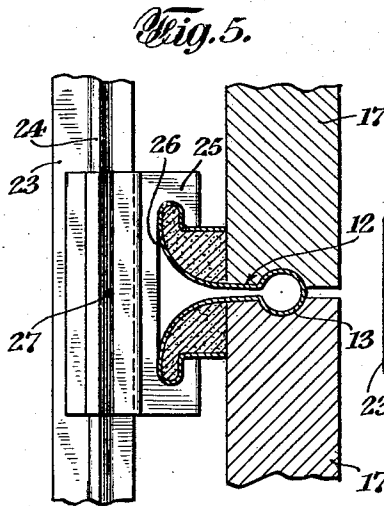
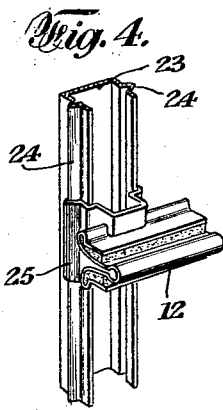
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# UNITED STATES PATENT OFFICE

2,042,290

## WALL CONSTRUCTION

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Long Island, N. Y.

Application June 15, 1935, Serial No. 26,724

17 Claims. (Cl. 72—24)

This invention relates to an improved wall construction which uses units of surfacing material of predetermined size. More particularly, a series of frame members spaced at regular intervals are provided to lock the surfacing units at their edges in position to form such a wall.

It is a main object of this invention to provide a quicker and cheaper wall construction using units of surfacing material of a predetermined size. Such surfacing units would include, for example, ceramic tile, glass tile, composition tile or boards or concrete, asbestos, metal and other prefabricated material for building construction. It is a further object of this invention to provide a series of new frame members correctly spaced apart, so as to permit the surfacing units chosen being pressed into position between the yielding portions of the adjacent frame members quickly and without injury to the unit.

It is a further object of this invention to fashion the edges of the surfacing units which are used so as to get the best locking engagement between the said units and the frame members. Still another object of this invention is to provide new and useful supporting members for said frame members and still further, in certain modifications, to provide means whereby said frame members can be quickly adjusted on the same supporting members for units of surfacing material of varying size. It is another object of this invention to provide sealing means for the joints between the units of surfacing material and further to join the surfaces of such units evenly, truly and attractively.

In a preferred embodiment of this invention, a series of frame members are held in a parallel relationship by supporting members attached to the building. The distance between adjacent frame members will equal, of course, the dimension of the surfacing unit spanning the adjacent members. Generally, these frame members have an enlarged portion projecting outwardly along its entire length which engages a recess in the edges of the surfacing units. Engagement takes place by pressing the surfacing unit between adjacent frame members until enlarged portion springs back into recessed edge of the surfacing unit. This springing action, however, does not take place with a modified friction holding form. Ordinarily, the surfacing units only will have to be supported along two edges. The yielding or deformation that takes place when the surfacing units are being pressed between the frame members in one form of device occurs near the base of the frame member and in a modified type, the

yielding is provided for in the enlarged projecting portion of the frame member. At times the last surfacing units to be placed in position may require a frame member of the latter type. The surfacing units are supported usually by the backing edge of a flange on each side of the projecting portion of the frame member. In the frame members where these flanges are integrally made a water and sound proofing material can be carried to seal the joints between the edges of the surfacing units. The joints at the non-supported edges of the surfacing units are sealed in the usual manner with mastic or sealing strips. If the projecting portions of the frame members are made long enough to be flush with the outer edges of the surfacing units when in place, then smoothing off the joints, apart from the sealing, would not have to be done, if desired, from the standpoint of appearance.

In a preferred embodiment, the supporting members are channeled and placed with the flanges outward to carry the frame members. In registry across the entire wall, slots are cut in the outwardly extending flanges of the supporting members of a shape to hold the frame members in position and yet permit the proper portions of the frame members to project. In another type of supporting member, the slots are cut in a slide carried by that member so that, if a different size of surfacing unit is to be used at the last moment, the frame members can be shifted to accommodate the change. The frame members are usually mounted in the supporting members' slots by threading or by springing the base together until the slot is entered. It is quite possible and within the limits of this invention to eliminate such supporting members and affix the frame members directly to the foundation structure.

The advantages of this new wall construction are to be found in the rapidity with which surfacing units of a predetermined size can be set up and locked in place. Furthermore, all of the joints are of the same size and line up perfectly. Then again, the frame members permit the expansion and contraction of the surfacing units. Still further, the surfacing units are held more or less away from the supporting members creating a dead space for insulation, sound-proofing or waterproofing, as may be desired. The elimination of the mortar bed in this invention formerly necessary for tile, glass or marble is an added saving. Various combinations of the features of this invention for varying uses can be made within the limits of this invention and other objects

and advantages of the invention will be apparent from the following drawings and description:

Figure 1 shows a section of the wall construction of this invention with several surfacing units in position;

Fig. 2 is a cross-sectional view of the frame member and of the supporting member taken on line 2—2 of Fig. 1;

Fig. 3 is a partial view of one side of the frame member taken on line 3—3 of Fig. 2;

Fig. 4 discloses a modified supporting member for use in adjusting the distances between frame members;

Fig. 5 is a cross-sectional view of the structure shown in Fig. 4;

Fig. 6 is a partial view taken at right angles to Fig. 5;

Figs. 7, 8 and 16 disclose modified types of frame members used in this invention;

Fig. 9 is a perspective view of a frame member for use with surfacing units such as composition board;

Fig. 10 is a cross-sectional view thereof;

Fig. 11 discloses a frame member of a modified type for composition boards or the like;

Fig. 12 is a view thereof taken on lines 12—12 of Fig. 11; and

Figs. 13, 14 and 15 show means for sealing the joints between the surfacing units at their non-supported edges.

Referring to the drawings,

Fig. 1 shows a section of wall construction suitable for a room. In this figure, 10 represents a series of supporting members placed vertically up the unfinished sides of the room at spaced distances apart. These supporting members 10 are fastened so that the flanges extend outwardly toward the interior of the room. At equal intervals along each flange of each supporting member 10, slots 11 are provided in registry one with another across the entire width of the room where the wall is to be erected. Fitting snugly into the slots 11 are the frame members 12 which are continuous usually for an entire wall. As shown in cross section (see Fig. 2) frame member 12 is provided with an enlarged head 13 and a narrower shank 14 projecting outwardly and a broader base 15 which fits snugly into the slots 11. The sheet metal of the base is curved around on each side of the shank 14 and terminates in an upstanding flange 16 which serves as a backing edge for the surfacing units 17 which are held or locked in place by the head 13 of frame members 12. The base 15 of the frame members is generally sprung into place in the slots 11, thereby catching underneath the ears 18 provided on the flanges of the supporting members 10.

As shown in Figs. 1 to 3, the supporting members 10 may be placed vertically, the frame members 12 horizontally and with the surfacing units 17 pressed into the position shown. The head 13 of each frame member 12 is designed to fill the complementary recess in the edges of the surfacing units 17, so that when the surfacing units are pressed into place the frame member 12 will rock or yield about its base 15 sufficiently to permit the surfacing unit 17 to come up against backing edge 16 and then the head 13 springs back into the recess in the edge of surfacing unit 17.

Surfacing units 17 are preformed and are composed of ceramic composition or like material ordinarily made up into predetermined sizes. Although in Fig. 1 the surfacing units 17 are recessed on all four of their edges, it is only necessary on the edges of the surfacing engaged by the

frame members 12. In the form shown, a preformed liner 19 is inserted before the next adjacent unit in a horizontal line is placed in position to seal the joint and make it waterproof. By virtue of the recess in this case, any seepage between the joints would be forced to travel a greater distance and thus more effective sealing is obtained.

In Fig. 15, the surfacing units 17 are rough along their unsupported edges and a liner 20 of rectangular cross section is chosen. Another variation of the means for sealing the joints between the unsupported edges of the surfacing units 17 (these would be the vertical joints in Fig. 1) is to use short sections of frame members 12 of a length equal to the unsupported edges of the surfacing units, which in such case would be provided with a recess, to make a joint such as shown in Fig. 14. For all practical purposes, this is the same joint that is made in Fig. 2. Another form of sealed joint uses a bronze or plastic liner 20' which is diamond-headed to fit tightly a complementary recess between adjacent surfacing units (see Fig. 13).

Figs. 4 to 6 inclusive show the supporting members 23 of channel shape provided with outstanding flanges which, however, instead of being slotted at spaced intervals along their lengths are provided with a bead 24 on the outer side of each flange. As many slide members 25, in which slots 26 are cut for frame members 12, are designed to slide over each set of beads 24 as there are frame members 12 to be carried by that supporting member 23. When the supporting members 23 are put in place, the frame members 12 carried by the slides 25 can be moved vertically so that any size of surfacing unit 17 may be used in the construction of that wall by the mere shifting of the slides 25. Once the size of the surfacing unit 17 is known, the slides are left in the proper position and a punch or other instrument is used to crimp the slide 25 in place on member 23 as at 27. Thereafter, the placing and locking of the unit 17 in the wall and the sealing of the joints is similar to that of the other embodiment.

In Fig. 7, there is shown a modified type of frame member comprising a split head portion 28 and a shank comprising two separated members 29 and 30 which are stamped or rolled in such fashion to provide a base for contact with a structural member of the building such as a beam 31 to which the bases are fixed by suitable means as shown. The outer flange of each base makes a right angle with the structural surface 31 and forms backing edges 32 and 33 on opposite sides of the shank 29—30. Sealing compound, if desired, is put in the channels between the sides 30—32 and 29—33. Thereafter the surfacing units 17 are pressed into position as heretofore explained. The advantage of this type of frame member lies in the deformation of the split head 28 which yields sufficiently to enable a surfacing unit 17 such as the last one or ones to be pressed into place without injury to the unit. Thereafter the head 28 springs back to normal position within the recessed edge to lock the surfacing unit 17 in place.

The supporting member 34 of Fig. 8 is slotted at 35 after the fashion of slots 11 and carries a 70 frame member comprising a rectilinear shank 36, base 37 and flanges 38. The sides of shank member 36 are roughened to afford a frictional grip on the surfacing units 39 as they are pressed into place against the backing edges 38. Such 75

surfacing units 39 may be roughened also at the supported edges to assist their locking engagement with shank 36.

Certain forms of surfacing units can more advantageously be manufactured with beveled edges. Such units 60 are shown in Fig. 16 coacting with a "keystone" type of frame member 61.

In Figs. 9 and 10, there is a supporting member 40 having two upstanding flanges 41 serving as backing edges for the surfacing units and a central web 42 extending outwardly beyond the flanges 41. This web 42 serves to carry a clip member 43 which passes through a slotted opening 44 in the web 42. Clip member 43 is of substantial length and is split at the base thereof so that the lower portion 45 and upper portion 46 overlap. The overlapped portions are spread sufficiently far to press against the edges of the slot 44 and render the clip member 43 relatively immovable with respect to the supporting member 40. This type of clip member 43 is primarily designed for composition boards of relatively larger surface area than found in ceramic or metal units. Such composition surfacing units 47 are recessed (Fig. 10) so that, as they are pressed into place, the sides of the clip member 43 move towards each other, with the result that, when the units 47 are in proper position, the clip member will spring into these recesses and bear with relatively wide shoulders 45' and 46' against the units 47 to lock them in position.

A modified construction is shown in Figs. 11 and 12 suitable for use as a partition or interior wall. In this construction, the supported edges of the surfacing units 48 are recessed for engagement with a frame or clip member 49 attached to a supporting member 50. The clip member 49 is preferably attached to the supporting member 50 in sections of short length, alternately faced in opposite directions to give support to surfacing units 48 on both sides of member 50. When the back of member 50 is constructed in the same manner (as shown), a double-surface wall is obtained. A shoulder 51 on each clip 49 is designed to bear against the recess in the edges of the units 48 and is sufficiently wide to prevent any injury to the said units 48. Because the hook-shaped heads of clip members 49 deform easily, units 48 may conveniently be pressed into final position. With but slight change, the double-surface construction shown in this modification is a possibility of all of the embodiments shown.

While the subject-matter of this invention has been described in connection with wall construction, it is to be understood that its use is also available for floors and for ceilings and for exterior as well as for interior work. Too, all of the surfacing units used in the construction of one wall usually will be of one size, but the various frame members can be so adjusted as to produce any surfacing unit arrangement that is wanted. This invention is to be limited solely by the scope of the appended claims.

I claim:

1. A surface construction comprising, in combination, a series of spaced supporting members, registering recesses in said supporting members, frame members held in said recesses, said frame members having portions projecting beyond the plane of said supporting members, and units of surfacing material of predetermined size adapted to be pressed between said projecting portions.

2. A surface construction comprising, in combination, a series of spaced supporting members, a series of frame members in parallel relationship

carried by said supporting members, means on said supporting members for changing the distance between said frame members while maintaining their parallel relationship, and units of surfacing material of predetermined size adapted to be pressed into locked engagement between said frame members.

3. A surface construction comprising, in combination, a series of fixed supporting members, two or more hook-shaped clip members alternately faced along the side of each supporting member, said clip members having a locking shoulder along the outer side thereof, units of surfacing material having recesses in the edges thereof adapted to engage said clip members whereby when said units are pressed into engagement with the alternate clip members on each supporting member that are facing properly, said shoulder will engage in the recess on said units.

4. A surface construction comprising, in combination, a fixed supporting member, a slot in said member, a yielding clip member threaded through said slot and around the edge of the supporting member, and a unit of surfacing material recessed along its supported edges for engagement with said clip member.

5. In a device of the class described, comprising in combination, a series of frame members, projecting portions on said frame members, supporting members for said frame members, said supporting members carrying slide members for engaging said frame members, and recessed units of surfacing material adapted to be pressed into locked engagement between adjacent projecting portions of said frame members whereupon said projecting portions yield about their bases and then return into said locked engagement with said units.

6. In a device of the class described, in combination, a series of parallel supporting members, flanges on said supporting members, registering recesses in the flanges of each supporting member, frame members adapted to engage in said recesses whereby said frame members are held in a spaced parallel series arrangement, and recessed units of a surfacing material adapted to be pressed into position between adjacent frame members whereupon, while said units are being pressed into position, said frame members yield at their bases and then return into final engagement with said units.

7. In a device of the class described, in combination, a spaced series of frame members in parallel relationship, projecting portions on said frame members offset from the plane of said supporting members, and units of surfacing material recessed along two edges thereof and adapted to engage and be held between any two adjacent frame members whereby alternate courses of said surfacing units may be placed in staggered relationship.

8. A device of the class described, in combination, a series of spaced frame members in a parallel arrangement, projecting portions on said frame members, units of surfacing material adapted to be pressed into position between adjacent projecting portions on said frame members, said units being recessed along opposite edges to effect locked engagement with said projecting portions, and sealing means for the joints between the non-supported edges of said surfacing units, forcing a fluid seeking to penetrate said joints to travel a path of greater dimension than the depth of said surfacing units.

9. A device of the class described, comprising

- in combination a series of spaced frame members in parallel arrangement, units of surfacing material recessed along two opposite edges thereof, and adapted to be pressed into locked engagement along their recessed edges with said frame members, recesses along the non-supported edges of said surfacing units, sealing means engaging said last-named recesses whereupon the path of resistance to fluid passage is effectively increased.
10. A device of the class described, comprising in combination, a series of spaced supporting members, a series of spaced frame members offset from and in parallel arrangement at right angles to said supporting members and engaged thereby, units of surfacing material adapted to be pressed into engagement with said frame members, said frame members yielding about their bases while said units are being pressed into position, and means allowing for the expansion and contraction of the surface constructed by said units.
11. In a device of the class described, in combination, a series of spaced frame members in parallel relationship, units of surfacing material adapted to be pressed into position between said frame members, said frame members comprising two separable members forming a projecting shank at the end of which is located a hooked enlarged portion adapted to engage complementary recesses in the edges of said surfacing units whereby said units are retained in locked position.
12. A device of the class described comprising in combination, a series of spaced frame members in parallel relationship, said frame members comprising a hollow rectilinear web portion and upstanding flange portions to each side of said web portion, said web portion being roughened along the outer sides thereof, and units of surfacing material adapted to be pressed into locked engagement with the roughened sides of said web portion.
13. A device of the class described, comprising in combination, a series of spaced frame members in parallel relationship, said frame members comprising a central projecting portion of substantially keystone cross-section, and units of surfacing material having beveled edges adapted to be pressed into locked engagement between the projecting portions of said frame members.
14. A device of the class described, comprising

- in combination, a series of spaced supporting members in parallel relationship, a series of spaced frame members at right angles to said supporting members, means slidably fastened to said supporting members and carrying said frame members whereby said frame members may be adjusted to accommodate different sizes of units of surfacing material and units of surfacing material adapted to be pressed into engagement between said frame members whereby they are supported on two opposite sides thereof.
15. In a device of the class described, comprising in combination a supporting member, outstanding flanges on said supporting member, registering recesses in said flanges, a frame member adapted to be held in said recess, said frame member comprising a rolled or stamped form of sheet metal having a hollow web with an enlarged end portion thereto and flange portions on both sides of said web portion, the lower end of said flange portions projecting to engage in said recesses when said frame member is sprung thereinto, and upon lateral pressure being applied to said web portion, said portion will rock about an axis at the base of said frame member.
16. A surface construction comprising in combination, a series of parallel supporting members having aligned recesses, a series of parallel frame members, each frame member consisting of a longitudinally slotted tube having base members projecting from the slot edges and arranged in the recesses in said supporting members, and units of surfacing material adapted to be pressed into locked engagement between said frame members, said base members being movable toward each other to contract said tube to permit insertion of said units between adjacent frame members.
17. A surface construction comprising in combination a pair of parallel frame members each consisting of a longitudinally slotted tube having base members projecting from the slot edges and being adapted to be received in recesses in supporting members, and units of surfacing material adapted to be pressed into locked engagement between said frame members, said base members being movable toward each other to contract said tube to permit insertion of said units between adjacent frame members.

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