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G. SLAYTER ET AL

2,140,772

SPLINE AND CONNECTOR

Filed May 17, 1937

2 Sheets-Sheet 1

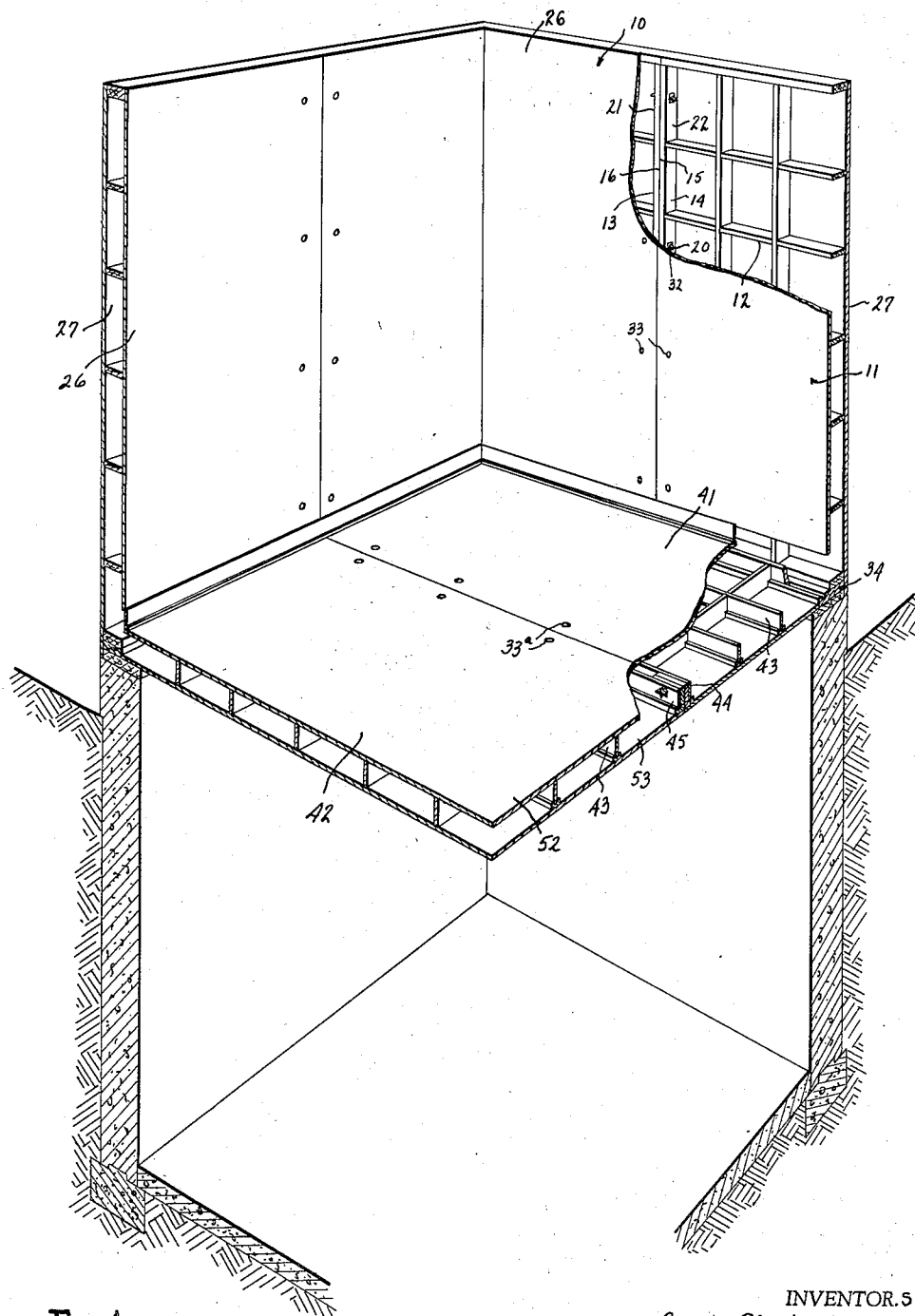


Fig. 1.

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2 Sheets-Sheet 2

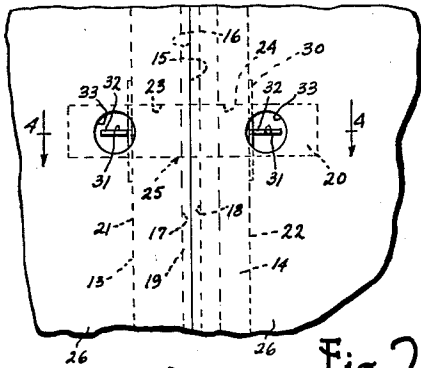


Fig. 2.

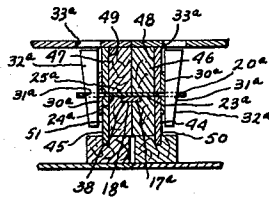


Fig. 6.

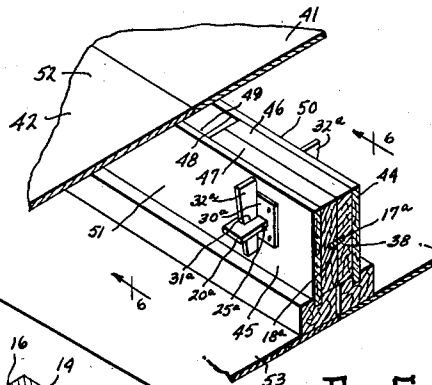


Fig. 5.

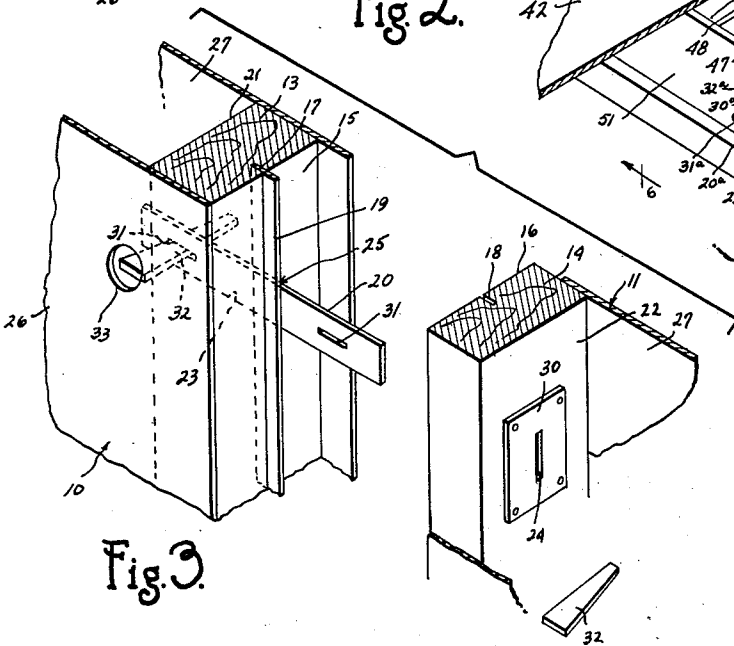


Fig. 3.

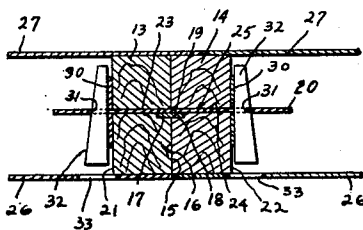
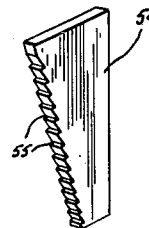


Fig. 4.

Fig. 7.



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## UNITED STATES PATENT OFFICE

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## SPLINE AND CONNECTER

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Application May 17, 1937, Serial No. 143,202

## 3 Claims. (Cl. 20—1)

The invention relates generally to building constructions, and refers more especially to improvements in the means for securing floor and wall sections together.

Heretofore, builders of prefabricated or sectional buildings have had great difficulty in properly securing together finished wall sections. The result was that actually much of the construction had to be done on the lot and a great deal of time was wasted in properly aligning and securing the sections together. This invention overcomes those obstacles by providing spline connectors which not only rigidly secure the finished sections together rapidly and easily, but which also align the sections both vertically and laterally.

Thus the object of the invention is to devise a spline connector for adjoining floor or wall sections which holds the sections in a firm and permanent position with relation to each other.

A further object of the invention is the provision of a spline which may be easily installed, even when wall paneling is attached to the studding.

Another object of the invention is the provision of a spline connector which will aid in the proper alignment of adjoining sections, both laterally and vertically.

A still further object of the invention is a spline which is completely concealed between the wall sections and which acts as a weatherstrip between the adjoining edges of the sections.

The foregoing as well as other objects of the invention will be more apparent as the description proceeds.

In the drawings:

Fig. 1 is a fragmentary perspective view of a portion of a building showing several wall sections and floor sections in place.

Fig. 2 is an enlarged elevational view of a portion of Fig. 1 showing two wall sections held in place by the spline;

Fig. 3 is a group perspective of the elements of Fig. 2 illustrating a step in the method of assembly and having certain parts broken away for the sake of clearness;

Fig. 4 is a horizontal sectional view on line 4—4 of Fig. 2;

Fig. 5 is an enlarged fragmentary perspective view of a portion of the floor of Fig. 1 showing the spline used to join the floor sections together;

Fig. 6 is a vertical sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a perspective view of a modified form of wedge means.

With reference to Figures 1 to 4 of the drawings, it will be seen that a wall portion of the building is shown. This wall comprises a plurality of sections 10 and 11, each section having vertical edge studs 13 and 14 extending substantially the length of the section and located between inner and outer panel boards 26 and 27. The adjacent studs 13 and 14 of the two adjoining sections 10 and 11 are secured together by the present invention, comprising a spline connector 25 having a key 19 and at least one connector 20 extending transverse of the key and preferably permanently secured thereto. Both the key 19 and the connector 20 are herein shown as comprising a flat strip of sheet metal.

For reception of the spline connector 25 the studs 13 and 14 have their inner faces 15 and 16 grooved the length thereof as at 17 and 18 to provide a seat for the key 19. At longitudinally spaced points the studs are also provided with slots 23 and 24 registering with grooves 17 and 18. These slots are carried through to the outer surface 21 and 22 of the studs so as to provide a seat for the connector 20. The number of pairs of slots in the studs will depend upon the number of connectors desired to be used. We prefer to use three or four connectors per section, spaced substantially equi-distant throughout the length of the studs 13 and 14.

Near the ends of the connectors are apertures 31 for the reception of wedge means 32 herein shown as a wedge peg. The apertures are so positioned on the connector that when the latter is seated in the slots the inner ends of the apertures will not extend beyond the outer edges 21 and 22 of the studs. Thus when the pegs 32 are inserted in the apertures, a wedging action is obtained between the outer ends of the apertures 31 and the outer side of the studding. To overcome any tendency of the sections to acquire slack due to the wood studding giving under this pressure, it is advisable to attach to the outer surfaces 21 and 22 of the studs wear plates 30 having openings in alignment with slots 23 and 24. To allow insertion of the pegs 32, openings 33 are made in the panel board at a position which will place them in line with the apertures 31 when the connector 20 is in place between the studding.

The operation of the spline is as follows: Wall section 10 is mounted on foundation means 34 and secured in place. The spline key 19 is then seated in groove 17 and the connectors extend through slots 23 to the inner face 21 of stud 13. Wall section 11 is then mounted on foundation means 34 and moved up so that the other half of

the key 19 will seat in the groove 18 and the connectors will extend through slots 24 to the inner face 22 of the stud 14. The pegs are then inserted through apertures 31 and driven firmly into place.

5 The construction of the spline and its operation in the floor sections is substantially the same as that just described for the wall sections. The key 38, however, is much shorter than the key 19, being only a foot or so in length. The connector 10 28<sup>a</sup>, however, is the same, only one being necessary for each key 38. About three or four independent splines 25<sup>a</sup> are used in each floor section.

The floor sections 41 and 42 vary, of course, from the wall sections. The frame work 43 may 15 be lighter and usually the joists 44 and 45 are spaced apart, thus reducing the number of joists necessary to support a given surface. When the joists are not sufficiently thick or sufficiently close together to allow for grooving, we use filler blocks 20 46 and 47 substantially the length of key 38 and attach them to the inner walls 48 and 49 of the joists 44 and 45. Grooves 17<sup>a</sup> and 18<sup>a</sup> are made into blocks and slots 23<sup>a</sup> and 24<sup>a</sup> are also made in the blocks, the latter being carried through 25 to the outer faces 50 and 51 of the joists 44 and 45. Wedge plates 38<sup>a</sup> may then be installed. The apertures 31<sup>a</sup> have their inner ends located with respect to the outer surfaces 50 and 51 of the joists in the same manner as described for 30 the wall sections.

Over the joists 44 and 45 of each section the applicants use a fibre board panel for the upper or subfloor surface 52 of the section and plaster board 53 as the lower or ceiling portion of the 35 section. The openings 33<sup>a</sup> are preferably made in the upper panel 52 and located with relation to the slots 31<sup>a</sup> in the same manner as openings 33 were located for slots 31.

The connection of the floor sections is as follows. One section such as 41 is seated on suitable supporting means. A key 38 is inserted in 40 each groove 17<sup>a</sup> of the blocks 46 and a connector for each key is inserted in each slot 23<sup>a</sup>. Section 42 may then be placed adjacent 41 allowing the other half of the keys and connectors to be seated in the respective grooves and slots. The wedge 45 pegs 32<sup>a</sup> are then inserted and driven tightly into place. In Figure 7 a modified form 54 of wedge peg 32 is shown. This peg has ratchet teeth 55. 50 These teeth are designed to engage the outer edge of apertures 31 and 31<sup>a</sup> and have a more definite locking action than the wedge peg 32.

Numerous other variations within the scope of this invention will be apparent from the foregoing description. While the invention has been 55 described with some detail, it is to be understood that the description is for the purposes of illustration only, and is not definitive of the limits of

the inventive idea, the right being reserved to make such changes in the details of construction and arrangement of parts as will fall within the provision of the claims.

What we claim as our invention is:

1. In a building construction, a pair of pre-formed building sections, each comprising spaced panel elements, structural members between said panel elements and at the edges thereof, means for securing said sections together comprising a 5 10 metallic connecting element extending through the adjacent structural members, means extending transverse of said building section and through said connecting element and abutting said structural members for clamping the latter 15 together, one of said panel elements having holes therein provided for the insertion of said clamping means therethrough and into the space between said panel elements.

2. In a building construction, a pair of pre-formed building sections, each comprising spaced panel elements, structural members between said panel elements and at the edges thereof, means for securing said sections together comprising a 20 25 key located between the adjacent sides of the members extending substantially the length of said member to prevent relative movement of the members in one direction, a connector extending through said structural members in a direction 30 transverse to the key, and means extending transverse of said building sections and through said connector and abutting said structural elements for clamping the latter together, one of said panel elements having small openings therein 35 provided for the insertion of said clamping means therethrough and into the space between said panel elements.

3. In a building construction, a pair of pre-formed building sections, each comprising spaced panel elements, structural members between said panel elements and near the edges thereof, means for securing said sections in fixed relation to one another, said means comprising a key located between the adjacent sides of the members, filler 40 45 blocks between the key and the members, a connector extending through the filler blocks and the members in a direction transverse to the key and attached thereto, means extending transverse of said building sections and through said connector and abutting said structural members for 50 clamping the latter in fixed relation, one of said panel elements having holes therein provided for the insertion of said clamping means therethrough and into the space in said panel elements.

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