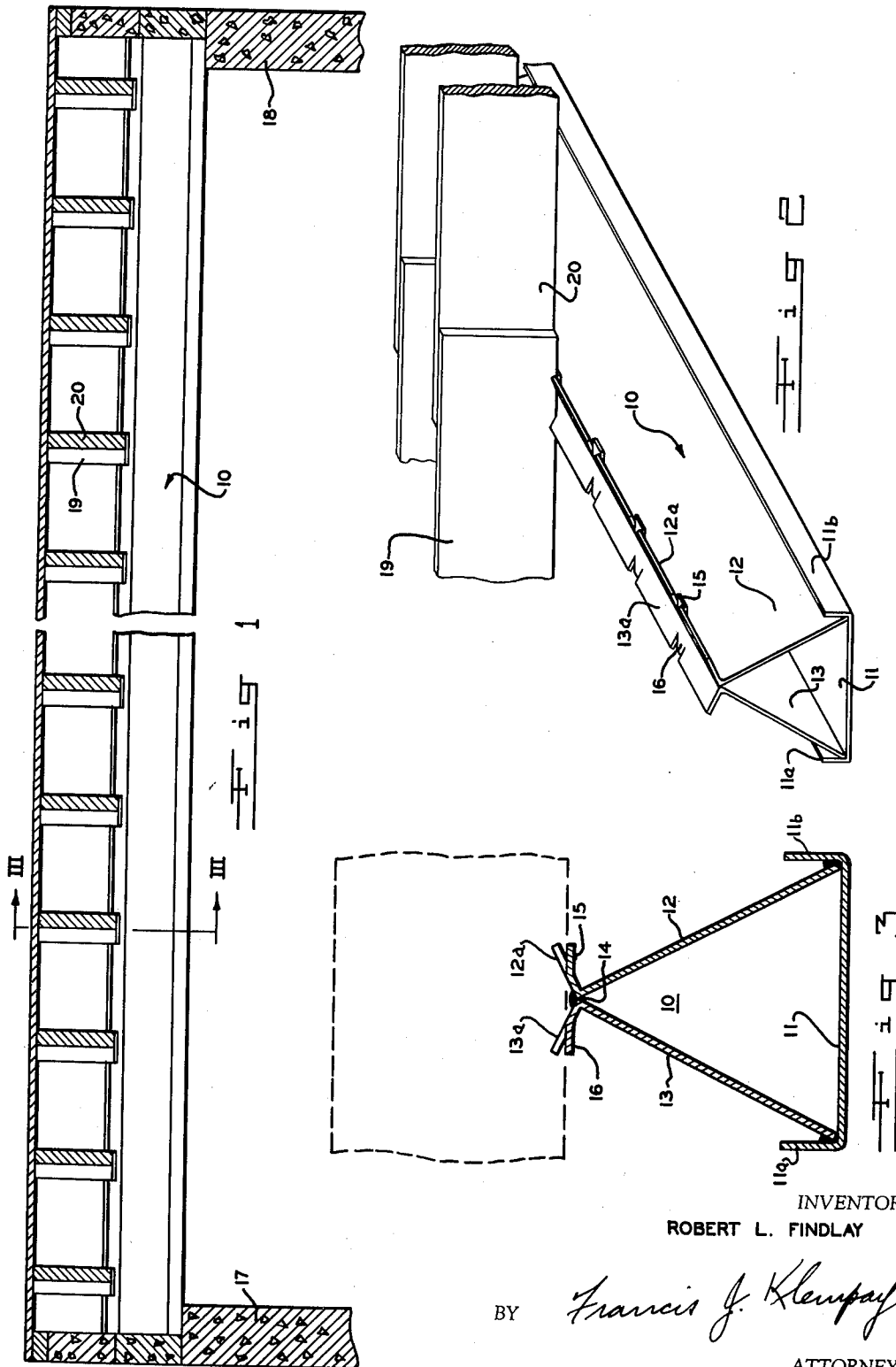


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R. L. FINDLAY
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STRUCTURAL MEMBER

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The present invention relates to structural members, and more particularly to an improved structural beam for use in supporting floors, for example.

As an overall object, this invention seeks to provide a structural member of novel and improved construction which is particularly adapted for incorporation into supporting framework for floor areas.

More specifically, it is an object of this invention to provide an improved structural member for use in the construction of housing, buildings and the like, which is adapted for supporting floor joists or similar structural elements so that the same may be extended over relatively long distances without the use of vertical posts or pillars which tend to obstruct the area below the supported joists.

Another object of the invention is the provision of a novel supporting member for floor joists and the like which, in addition to its above mentioned desirable characteristics, substantially facilitates and simplifies the construction of the floor area of which the supported joists form a part. In one aspect, this object of the invention contemplates the provision of a novel supporting structural member wherein are formed a plurality of regularly spaced upwardly opening recesses adapted to receive one or more joist members, the arrangement being such that the joists are automatically properly spaced and partially supported during early phases of the construction, thereby simplifying the erection operation.

A further object of the invention is the provision of an improved structural member of the type and having the characteristics set forth above which is additionally of simplified construction throughout, having a welded make-up of simplified components, whereby the assembly may be economically manufactured and marketed.

The above and other objects and advantages of the invention will become apparent upon full consideration of the following detailed specification and accompanying drawing wherein is disclosed a certain preferred embodiment of the invention.

In the drawing:

Figure 1 is a fragmentary section view through a representative floor structure, showing the manner in which the structural member of my invention is incorporated therein;

Figure 2 is a fragmentary perspective view of the structural assembly of my invention; and

Figure 3 is a transverse section view through the structural member of my invention, the view being taken substantially along line III—III of Figure 1.

Referring now to the drawing, the reference numeral 10 designates generally the improved structural element of my invention, which is shown in Figure 3 to be essentially in the form of an elongated triangular beam, the lower side of which is disposed substantially in a horizontal plane. In accordance with the preferred teachings of the invention the structural element or beam 10 is comprised of a horizontally elongated upwardly opening channel-like member 11 which defines the bottom of the beam. Prefer-

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ably, the channel-like member 11 is formed of steel plate, of three-sixteenths inch thickness for example, the edge portions 11a and 11b of which are bent upwardly in the manner indicated in Figure 3. Of course, commercial rolled sections may be utilized where desired.

In the standard embodiment of the invention the channel member 11 is in the order of ten inches in width, having upwardly extending edge portion 11a and 11b of in the order of two inches.

Supported by the channel member 11, in the spaced corner portions thereof, are horizontally elongated plate members 12 and 13 which are inclined inwardly, each contacting the other along its upper corner portion, as at 14. The plates 12 and 13 may have a principal width dimension of in the order of ten inches, for example. And in accordance with the teachings of the invention each of the plates 12 and 13 is provided along its upper edge with outwardly turned portion 12a or 13a which extends generally throughout the entire length of the principal member. In the illustrated device, the outwardly turned portions 12a and 13a are disposed substantially at right angles with the main portions or plates 12 and 13. This angle is not necessarily critical. However, as will later appear, the arrangement should be such that the outwardly turned portions are directed upwardly from the horizontal, as is clearly indicated in Figure 3.

Preferably, the assembly thus described is welded together to form a rigid unitary structural member of generally triangular outline. And as shown in Figure 3, welds may be conveniently made along the upper apex of the beam, between the outwardly turned portions 12a and 13a, and along the lower apices between the upwardly extending edge portions 11a and 11b of bottom member 11 and the outer surfaces of the plates 12 and 13. It will be noted in this respect that the channel-like member 11 greatly facilitates assembly of the beam structure in that the upwardly extending angle-shaped members 12 and 13 are automatically retained in position upon mere assembly of the parts and prior to welding. Thus, few, if any, clamps and fixtures are required in the assembly operation. And in the assembled structure the upwardly extending portions 11a and 11b serve to materially strengthen the beam as will be readily understood.

In accordance with the teachings of the invention the outwardly extending portions 12a and 13a of the angle-like members 12 and 13 are provided at regularly spaced points over the entire longitudinal extent of the beam with pairs of slots or cuts which are disposed transversely to the principal axis of the beam and which extend inwardly from the outer edges of the portions 12a and 13a but preferably not entirely through the last mentioned portions. Between each of the pairs of cuts or slots there is defined a tab-like member, as at 15 and 16. If desired, the tab portions 15 and 16 may be removed entirely. But preferably the same are bent downwardly, out of the planes of the portions 12a and 13a, and into general horizontal alignment, as shown in Figure 3.

Also in accordance with the teachings of the invention the tab portions 15 and 16 are arranged in aligned pairs, spaced regularly at, for example, sixteen-inch centers, and having a width of approximately three and one-quarter inches. The arrangement is such that there may be received in each opening formed by the downward bending of the tabs 15 and 16 a pair of "two-by-eight" or "two-by-ten" joist members, positioned in side-by-side relation.

Thus, in the construction of a floor expanse, spaced supporting walls 17 and 18 are provided with suitable bearing areas for supporting an assembled beam structure 10 at its extreme ends. The beam 10 may be positioned centrally, for example, beneath the floor expanse, and is positioned transversely to the direction of the floor sup-

porting joists. Of course, at this stage of the construction the joists are not yet in position.

To assemble the joist work, individual joists 19 are supported at one end upon a foundation wall, or other support, not shown, and at their other end by the beam 10, the joist 19 being received in one of the plurality of upwardly opening recesses and supported by the tabs 15 and 16. As shown in Figure 2, the end of the joist 19 extends slightly beyond the beam 10, in accordance with preferred construction procedure. After the joist 19 is properly positioned, a second joist 20 is assembled into position in side-by-side relation to the joist 19, the joists extending in opposite directions, as shown in Figure 2. As a matter of common practice the joists 19 and 20 are overlapped at their adjacent end portions. And in accordance with the teachings of the invention the overlapped ends of the various pairs 19 and 20 of joists are received rather snugly within the recesses spaced along the top of the beam 10. Further in accordance with the teachings of the invention the outwardly extending portions 12a and 13a of the angle members 12 and 13 extend upwardly above the tabs 15 and 16 so as to engage the opposite sides of an assembled pair of joists. The arrangement is such that not only are the joists retained in their assembled side-by-side relation, but they are further retained in an upright position while the construction progresses.

It should now be apparent that I have accomplished the objects initially set forth. My structural member provides not only for improved supporting of joist work and similar construction, but in a more important respect for an improved and substantially simplified assembly procedure for construction of the nature concerned.

There is taught by my invention a novel structural member having a plurality of regularly spaced upwardly opening joist-receiving recesses therein which not only locate the joist members in desired regular spacing but maintain the same in an upright position during the initial stages of construction. Heretofore it has been common to accurately measure and locate each joist individually during assembly, and to secure and brace the same to maintain it in such position during subsequent phases of construction.

In addition to these obvious advantages, the device of my invention may be easily and inexpensively constructed out of standard steel plate material, welded as necessary. And the assembled beams may be furnished in standard sizes, with standard regularly spaced joist-receiving recesses provided therein. If sizes other than standard are

desired, the beams may be readily cut to length at the construction site with a cutting torch, for example.

The assembly of my beam structure is highly simplified and economical. The channel-shaped bottom member retains the side plates 12 and 13 in assembled position prior to the welding of the assembly so that special clamps or fixtures are unnecessary, and the set-up time, prior to welding, is reduced to a minimum.

It should be understood, however, that the device herein shown and described in detail is intended to be illustrative only, and reference should therefore be had to the following appended claims in determining the full scope of the invention.

I claim:

1. A structural member comprising an elongated generally triangular beam of plate construction, said beam having a bottom wall and side walls and being welded together at its upper apex, means integral with said side walls and extending upwardly and outwardly from said apex, said means having a plurality of regularly spaced recesses therein of predetermined width for the reception of other structural members, said recesses having side edge portions adapted to bear transversely against the sides of said other structural members.

2. A structural member comprising an elongated generally triangular beam of plate construction having as its bottom wall a horizontally elongated upwardly opening channel-shaped member and having as its side walls a pair of inwardly inclined plate-like members having their bottom edges seated and welded in the corners of said channel-shaped member, the upper edge portions of said plate-like members being bent upwardly and outwardly of the apex of the triangular beam shape, said plate-like members being welded together along said apex, said upwardly and outwardly bent portions having spaced pairs of slots therein defining tab portions therebetween, said tab portions being bent downwardly into horizontal joist-supporting position and thereby defining spaced recesses in said upwardly and outwardly bent portions to receive said joists, said recesses having side edge portions adapted to bear transversely against the sides of said joists.

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