June 21, 1938. V. JACOBSON 2,121,432

STRUCTURAL ASSEMBLY

Filed March 1, 1937

Fig. 1.

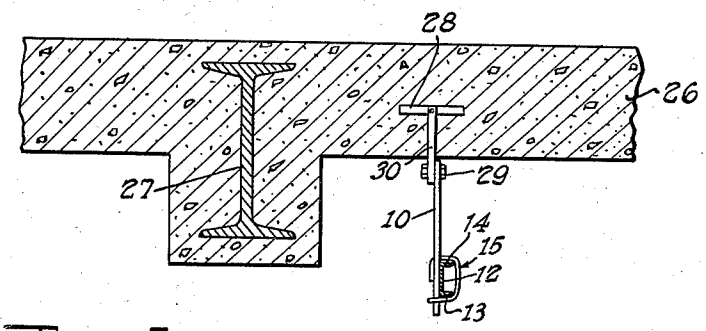


Fig. 2.

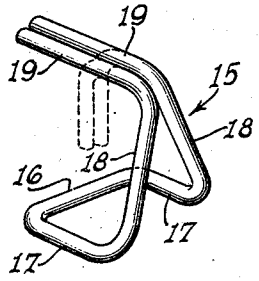


Fig. 3.

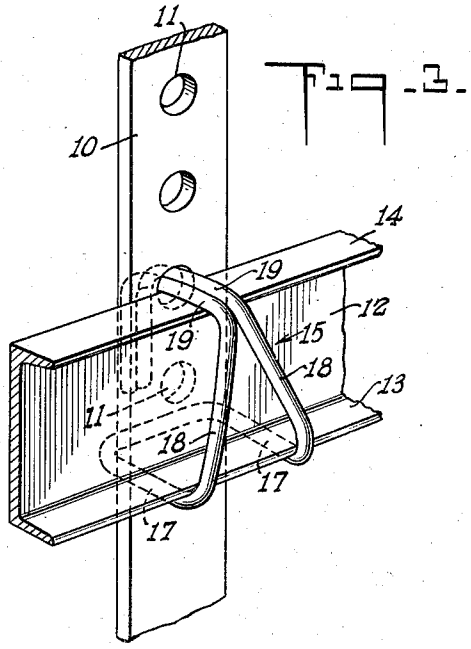
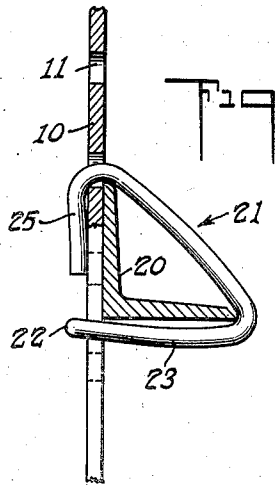


Fig. 4.



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STRUCTURAL ASSEMBLY

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Application March 1, 1937, Serial No. 128,323

2 Claims. (Cl. 189—35)

This invention relates to a structural assembly, and more particularly to an assembly including a clip or fastener for tying together two structural supporting members.

In the construction of ceilings in steel buildings, where it is desired to hide the beams or to provide a space for piping or wiring between the ceiling and floor above, it is now the practice to suspend vertical strap irons or hangers from the reenforced concrete floor slab, and to then fasten to the straps horizontal structural members, such as channels or angles, by which the ceiling is supported.

The procedure of erecting such a ceiling suspension support, as now conducted, is rather laborious and expensive. It involves, generally speaking, the operations of temporarily suspending the hangers; marking the proper ceiling level; taking down the hangers; cutting and punching the hangers; replacing the hangers; punching the horizontal members for reception of fastening bolts; and bolting the horizontal members to the hangers.

It is an object of my invention to provide a ceiling suspension support which may be quickly and inexpensively assembled in situ without the necessity of punching holes in, or of bolting together any of the parts.

A further object of the invention is to provide a ceiling support assembly that may be readily adjusted to suspend the ceiling at the desired height.

Another object of the invention is to provide a clip or fastener of simple and inexpensive construction that may be easily applied to fasten together the structural members, one of which crosses the other.

Other objects and advantages of the invention will appear from the following description thereof, reference being had to the accompanying drawing, in which:

Figure 1 is a vertical sectional view of a conventional floor slab having a beam embedded therein and showing a ceiling support assembly suspended therefrom;

Fig. 2 is a perspective view of the clip element of the ceiling suspension assembly;

Fig. 3 is a detailed view in perspective of the assembly; and,

Fig. 4 is a side view, partly in section, of a modification of the assembly.

The suspension assembly is best seen in Fig. 3 wherein 10 indicates a vertically suspended metal strap or hanger having a series of perforations 11 formed therethrough at approximately equally spaced intervals. The perforations may conveniently be about ¼'' in diameter and spaced about ¾'' between centers, although these dimensions may, of course, be varied. Extending horizontally crosswise of the member 10 is a channel member 12 having a lower flange 13 and an upper flange 14. The members 10 and 12 are tied and bound together by means of a metal or wire clip which is indicated generally by the reference character 15.

The clip 15 may be made of soft annealed wire or other suitable metal. I have found that #12 wire may be satisfactorily used. The clip is preferably made of a single piece of wire bent to form a cross arm 16, two forwardly extending arms 17—17, two substantially vertical arms 18—18 which converge upwardly toward each other, and two rearwardly extending arms 19—19. The arms 19—19 may lie closely together, or in contact with each other, and in a plane substantially parallel to the plane of the U or open loop formed by the arms 16 and 17.

In the assembly as shown in Fig. 3, the lower flange 13 of the channel rests upon and is supported by the clip arms 17. The clip is slipped over the lower end of the hanger, with the cross arm 16 bearing against the rear face of the hanger, and the arms 19 of the clip are inserted in one of the perforations 11 in the hanger. The proper perforation is determined in advance according to the height at which it is desired to suspend the ceiling. Provision of a plurality of preformed perforations in the hanger eliminates the necessity of punching holes in the hanger in situ, as has heretofore been the practice. The part of the hanger 10 that extends below the lower flange 13 of the channel 12 may be cut off, if desired. After the clip has been placed in position, the rear end portions of the arms 19 are bent downward tightly against the rear face of the hanger to hold the channel in place and to bind the parts together.

A modification of the clip adapted for use with angle members instead of channels is shown in Fig. 4. In this view the angle member 20 is held by a clip 21 having a rear arm 22, two forwardly extending arms 23, two rearwardly inclined and upwardly converging arms 24, and two rearwardly extending arms 25. As Fig. 4 is a side view of the clip, only one of each of the arms 23, 24 and 25 is seen. Furthermore, the arms 25 are shown as bent down to fasten the clip in place but it will be understood that before they are so bent, they lie in a plane substantially parallel to the plane of the arms 23. The clip 21 is substan-

tially similar in construction to the clip 15 except that the arms 24 are inclined rearwardly instead of extending vertically upwards, as do the corresponding arms 18 of the clip 15.

In Fig. 1 there is illustrated a section of a conventional reenforced concrete floor slab 26 having an I beam 27 embedded therein. The concrete sheathing of the lower end of the I beam extends below the level of the under face of the floor slab. The hangers 10 of the ceiling suspension assembly may be suspended vertically from the floor slab in any known manner as, for example, by hooking them on to the metal reenforcements in the concrete. One convenient manner of attachment is to embed a standard T 28 in the concrete and to fasten the upper end of the hanger 10 by means of a bolt or screw 29 to the downwardly projecting portion 30 of the T. It is to be understood that the invention is not limited in respect to the manner of suspending the hangers.

While I have described the invention with particular reference to its use as a ceiling suspension, it will be apparent that it may be used for other purposes in building construction, and that various modifications in the details of construction and arrangement of parts hereinabove described may be made within the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. In a structural assembly, a flat hanger, a structural member laid against the hanger, a wire clip having a central portion looped around the hanger, forwardly extending portions and upwardly extending portions embracing the structural member, and end portions passed through an aperture in the hanger and turned down towards the loop portion.

2. In a structural assembly, a flat hanger having a plurality of apertures, a structural member laid against one face of the hanger, a wire clip having a central portion looped around the hanger, forwardly extending portions upon which the lower edge of the structural member rests, upwardly extending members passing across the front of the structural member, and end portions passed through an aperture in the hanger and turned against the rear face thereof.

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