

[54] **CONNECTOR ASSEMBLY FOR SCAFFOLD STRUCTURES**

[75] Inventor: **Peter Eric Gostling**, Sutton
Coldfield, England

[73] Assignee: **C. Evans & Sons Limited**, Ilford,
England

[22] Filed: **Oct. 10, 1973**

[21] Appl. No.: **404,995**

[52] U.S. Cl. **403/49; 403/189; 403/230;**
403/256; 403/316; 403/374

[51] Int. Cl. **E04g 7/30; F16b 7/04**

[58] Field of Search 182/178, 179; 403/49, 187,
403/230, 256, 315, 316, 374, 353, 409;
211/182; 248/73, 224; 52/583, 753 G, 584,
594; 249/219 W; 312/190; 292/183, 189, 302

[56] **References Cited**

UNITED STATES PATENTS

2,031,612 2/1936 Masor 249/7

3,273,921	9/1966	Young et al.	403/49
3,420,557	1/1969	Francis et al.	182/179
3,492,702	2/1970	Stafford	403/374
3,672,710	6/1972	Kroopp	403/256
3,791,091	2/1974	Albrizzi	211/182

FOREIGN PATENTS OR APPLICATIONS

1,163,532	9/1969	United Kingdom.....	403/189
735,763	6/1966	Canada	403/49

Primary Examiner—Werner H. Schroeder

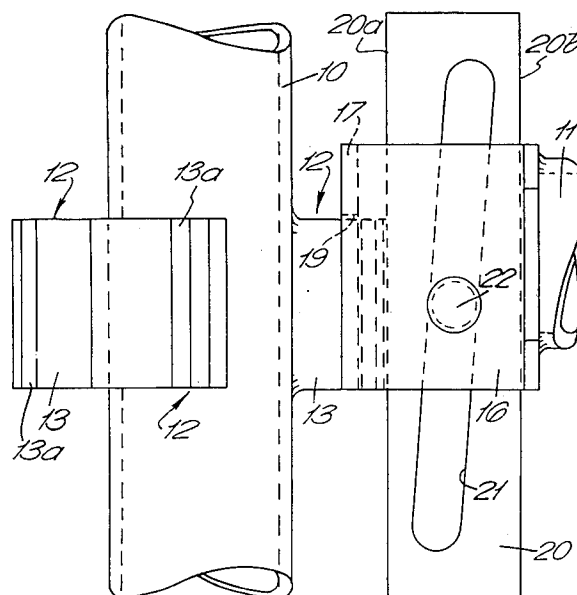
Assistant Examiner—Conrad L. Berman

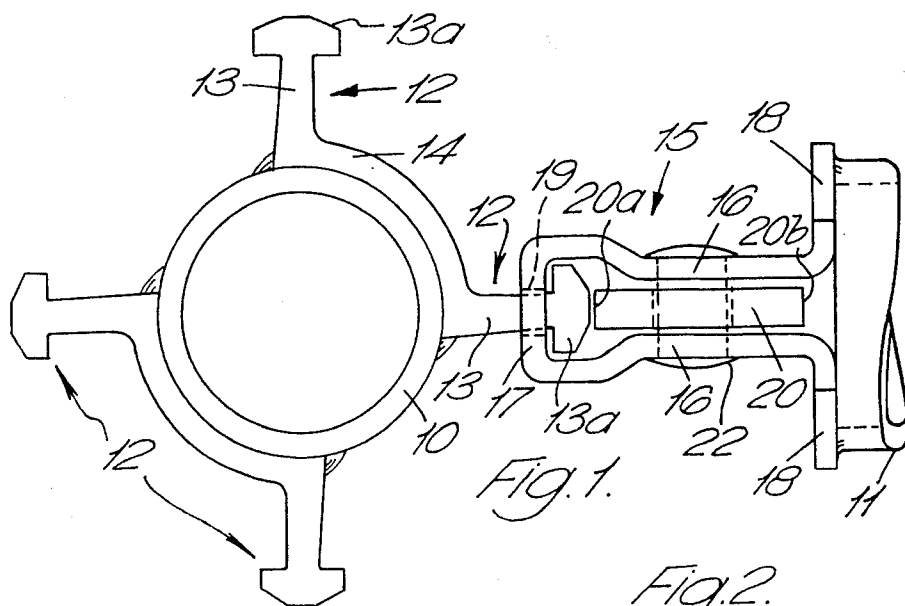
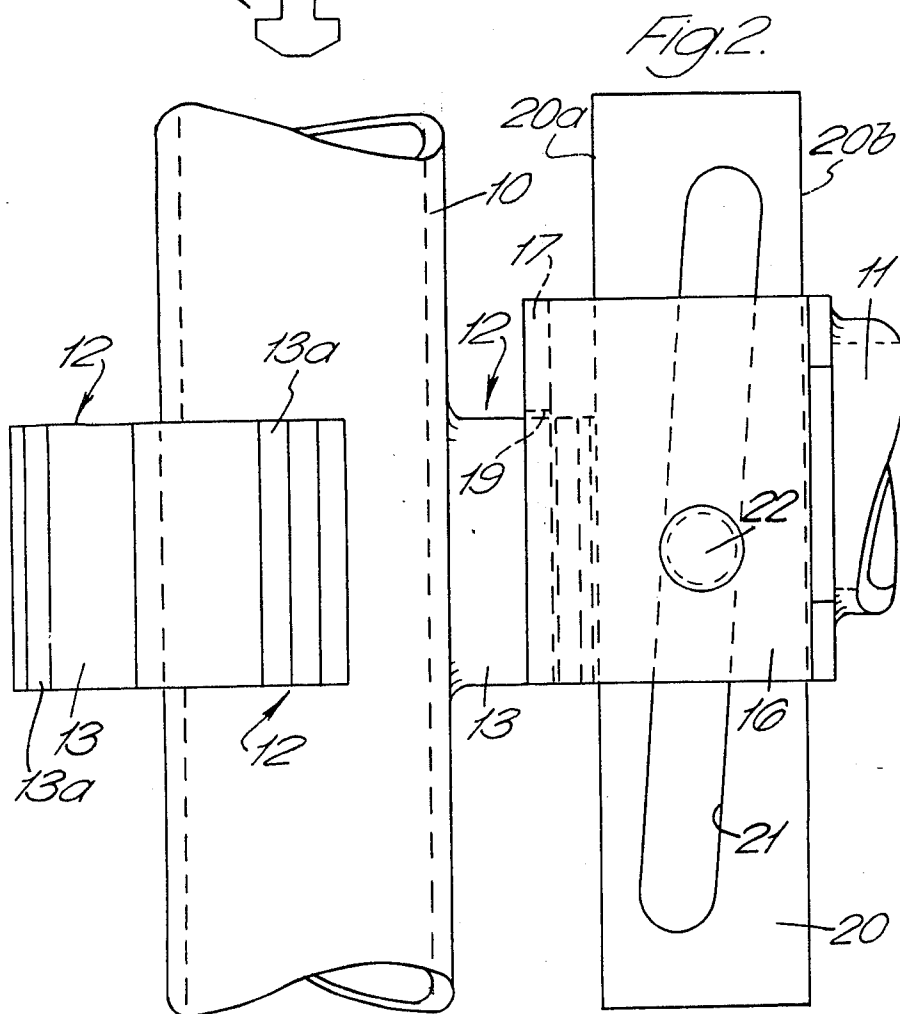
Attorney, Agent, or Firm—Melville, Strasser, Foster & Hoffman

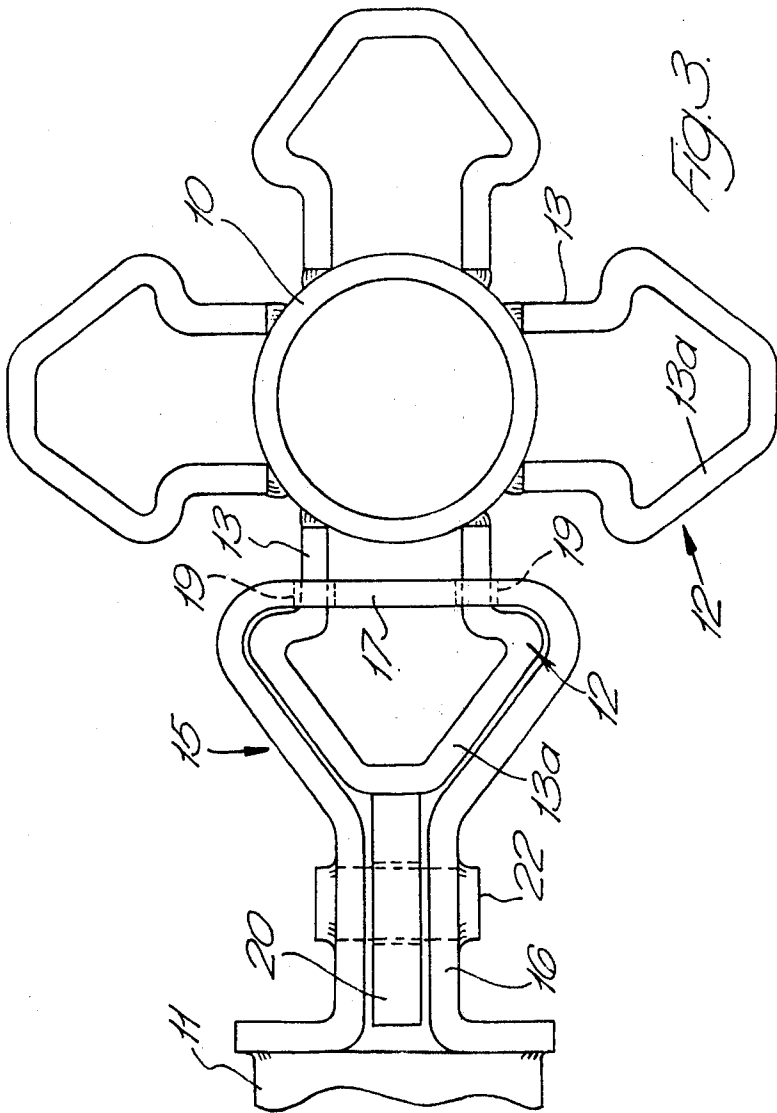
[57] **ABSTRACT**

A connector assembly for use in interconnecting the upright supports and the cross members in builders' scaffolding, including a T-shaped element for fixing to the upright supports and a hook element mounting a wedge member fixed to the cross members for interengagement with the T-shaped element.

7 Claims, 3 Drawing Figures







CONNECTOR ASSEMBLY FOR SCAFFOLD STRUCTURES

This invention relates generally to builders' scaffolding of the kind comprising upright supports or standards and cross members which are interconnected to form a rigid structure. The term "cross members" includes horizontally extending ledgers, horizontally extending transoms, diagonal and other bracing members, and other members such as outrigger brackets which extend transversely to the upright supports or standards, and which are adapted to connect together, or be connected to, the upright supports or standards.

The present invention is concerned with a connector assembly for interconnecting the cross members with the standards in scaffolding of the aforementioned kind.

The term "builders' scaffolding" is intended to cover scaffolding for access purposes where the upright supports or standards are of one diameter, and also to cover scaffolding for propping purposes where the upright supports or standards, or other upright supporting members, are of the same, or of larger, diameter as that used for access scaffolding.

It is among the objects of the present invention to provide an improved connector assembly which enables standard length cross members to be used with both of the aforementioned sizes of upright supports whilst maintaining standard spacing between said upright supports.

It is further among the objects of the invention to provide an improved connector assembly which is robust in construction and is devoid of loose parts.

According to the present invention, there is provided a connector assembly for builders' scaffolding of the kind hereinbefore defined, which comprises a first element for connection to an upright support for standard, and a second element for connection to a cross member, wherein said first element is of elongated form and of substantially T-shaped cross-section to present a crossbar portion and a tail portion, and the second element consists of a pair of side walls interconnected at one end by a base wall, said base wall having a slot to accommodate the tail portion of the first element whilst those portions of the base wall on opposite sides of said slot define hooks for engagement with opposite ends of the crossbar portion of the first element, and a wedge member carried by said second element and operable to urge the hooks into engagement with the crossbar portion of the first element.

One example of a scaffold structure incorporating the connector assembly of the invention will now be described with reference to the accompanying drawings in which:

FIGS. 1 and 2 show plan and side elevations respectively of a portion of the structure, and

FIG. 3 shows in plan view a modified arrangement.

Referring to FIGS. 1 and 2 of the drawings, there is shown a vertical or upright support member 10 to which is connected a cross member 11, both members being of tubular form. The connector assembly for connecting the two members 10, 11 comprises first and second elements 12 and 15 which are welded to the members 10 and 11 respectively. The element 12, which is secured to the member 10, comprises an elongated member of substantially T-shaped cross-section to present a tail portion 13 and a crossbar portion 13a,

the latter extending substantially parallel to the wall of the member 10. The ends of the crossbar 13a may, for convenience in manufacture, be tapered towards their extremities, this being achieved by chamfers formed on the outer surfaces thereof. The element 12 is formed integrally with a foot portion 14 which is shaped to conform to the outer surface of the member 10, and conveniently, the foot portion extends through approximately 90° and mounts a second element 12. The foot portion 14 is secured to the member 10 by welding along two lines at the extremities of the foot portion. Moreover, the member 10 is provided with a further pair of elements 12 arranged diametrically opposite the first mentioned pair of elements so that four cross members can be secured to the upright member. Conveniently the foot portion 14 and the pair of elements 12 are formed integrally as a hot rolled section.

The second element 15, which is secured to the member 11, comprises a pressing formed to define a pair of spaced side walls 16 interconnected at one end by an integral base wall 17. At their other ends the side walls 16 are turned outwardly to define a pair of flanges 18 which are welded to the end of member 11. The flanges 18 may be clipped at the corners so that they generally conform to the cross-section of the member 11. The base wall 17 is provided with a slot 19 which extends upwardly from the lower edge of the wall, the slot being sufficiently wide to accommodate the tail portion 13 of the element 12. Furthermore, the spacing of the side walls 16 increases adjacent the base wall 17 so that the side walls can pass around the ends of the crossbar portion 13a of the element 12. Moreover, the portions of the base wall 17 lying on opposite sides of the slot 19 define hook portions which, when the elements 12 and 15 are engaged with each other, engage with the ends of the crossbar 13a of the element 12.

The element 15 also incorporates a wedge member 20 which is of rectangular section having opposed substantially parallel side edges 20a and 20b and is slidably located between the side walls 16. Formed in the wedge member is a slot 21 in which is located a pin 22 which is carried by the side walls 16. The slot 21 is inclined relative to the edges 20a and 20b, and to the base wall 17, and the arrangement is such that when the elements 12, 15 are engaged with each other, the wedge member is tapped downwardly as shown in the drawing so that the edge 20a engages the crossbar 13a tending to force it away from the pin 22. This has the effect of drawing the hook portions of the base wall 17 into engagement with the crossbar 13a of the element 12. The weight of the cross member 11 is transferred from the end wall of the slot 19 to the central limb of the element 12.

The wedge member 20 is captive with the element 15 and it can be retained out of its wedging or operative position by tapping it upwardly so that the side edge 20b thereof engages the end of the cross member 11. This causes the wedge member to be held between the end of the member 11 and the pin 22.

In the arrangement shown in FIG. 3, the element 12, instead of being of "solid" form, is produced by a press or similar operation from a strip of metal. As a result, the element 12 has a larger cross-sectional area and the size of the element 15 is changed accordingly. In addition, the walls of the element 15 are shaped to conform closely to the member 12. In this case, each individual element requires two lines of weld to secure it to the upright member 10. In addition, the element 15 is

formed with two spaced slots 19 to engage over the two arms forming the tail portion 13 of the element 12.

It will be seen that, in both of the embodiments described, the base wall 17 is spaced from the periphery of the upright support member 10. It will be realized that this spacing, and thus the length of the tail portion 13 of the element 12, will vary according to the diameter of the upright support member 10. Thus, by positioning the underside of the crossbar portion 13a of the element 12 a predetermined distance from the longitudinal axis of the support member 10, support members 10 of different diameters can be used without changing the centre-to-centre spacing thereof. This has the obvious advantage that, where necessary, two or more sizes of support member 10 can be used in the same structure since the cross members 11 are usable with all sizes of support member.

In addition, smaller diameter support members can be used in continuation of larger diameter support members by telescoping the former into the latter, again using standard length cross members.

I claim:

1. A connector assembly for builders' scaffolding of the kind consisting of upright standards interconnected by cross members to form a rigid structure, said connector assembly comprising a first element of substantially T-shaped cross-section having a tail portion fixed to an upright standard and a crossbar portion which lies parallel to and spaced from an upright standard, a second element in the form of a pair of spaced side walls and a base wall interconnecting one end of each of said side walls, the other ends of said side walls being fixed to a cross member, a slot formed in said base wall receiving said tail portion of said first element, those portions of said base wall disposed on opposite sides of said slot defining hooks engaging opposite ends of said crossbar portion of said first element, and a rectangular wedge member slidably carried between said side walls of said second element and operably urging said hooks into locking engagement with said crossbar portion of said first element, said wedge member comprising a flat plate and a slot formed in said plate, a pin positioned in said slot and fixed at its ends to said side walls of said

second element, a first side edge of said wedge plate engaging said crossbar of said first element and said slot being inclined relative to said first side edge whereby, in use, movement of said wedge member in one direction relative to said pin urges said crossbar into engagement with said hooks, said first side edge of said wedge plate and an opposed second side edge of said wedge plate being substantially parallel with each other whereby, when said wedge member is moved in one direction, said first side edge will engage with said first element and, when said wedge member is moved in the opposite direction, said second side edge will engage with said cross member so that said wedge member will be retained in a non-operative position to facilitate inter-engagement of said two elements.

2. A connector assembly as claimed in claim 1, in which said first element is formed from a strip of material by a press operation or the like, said element being secured to the upright member by a pair of weldlines.

3. A connector assembly as claimed in claim 1, in which said side walls of said second element are turned outwardly at their ends remote from said base wall to define flanges for attachment to said cross member.

4. A connector assembly as claimed in claim 1, in which the spacing of said side walls of said second element is increased adjacent said base wall thereof.

5. A connector assembly as claimed in claim 1, in which the length of said tail portion of said first element is such that, when said first and second elements are interconnected, said base wall of said second element is spaced from the peripheral surface of said upright support member.

6. A connector assembly as claimed in claim 1, in which said first element is formed integrally with a foot portion which is shaped to co-operate with the surface of said upright standard, said foot portion being welded or otherwise secured to said upright standard.

7. A connector assembly as claimed in claim 6, in which said foot portion is formed integrally with a further one of said first elements, said tail portions of said first elements extending substantially at 90° relative to each other.

* * * * *

45

50

55

60

65