

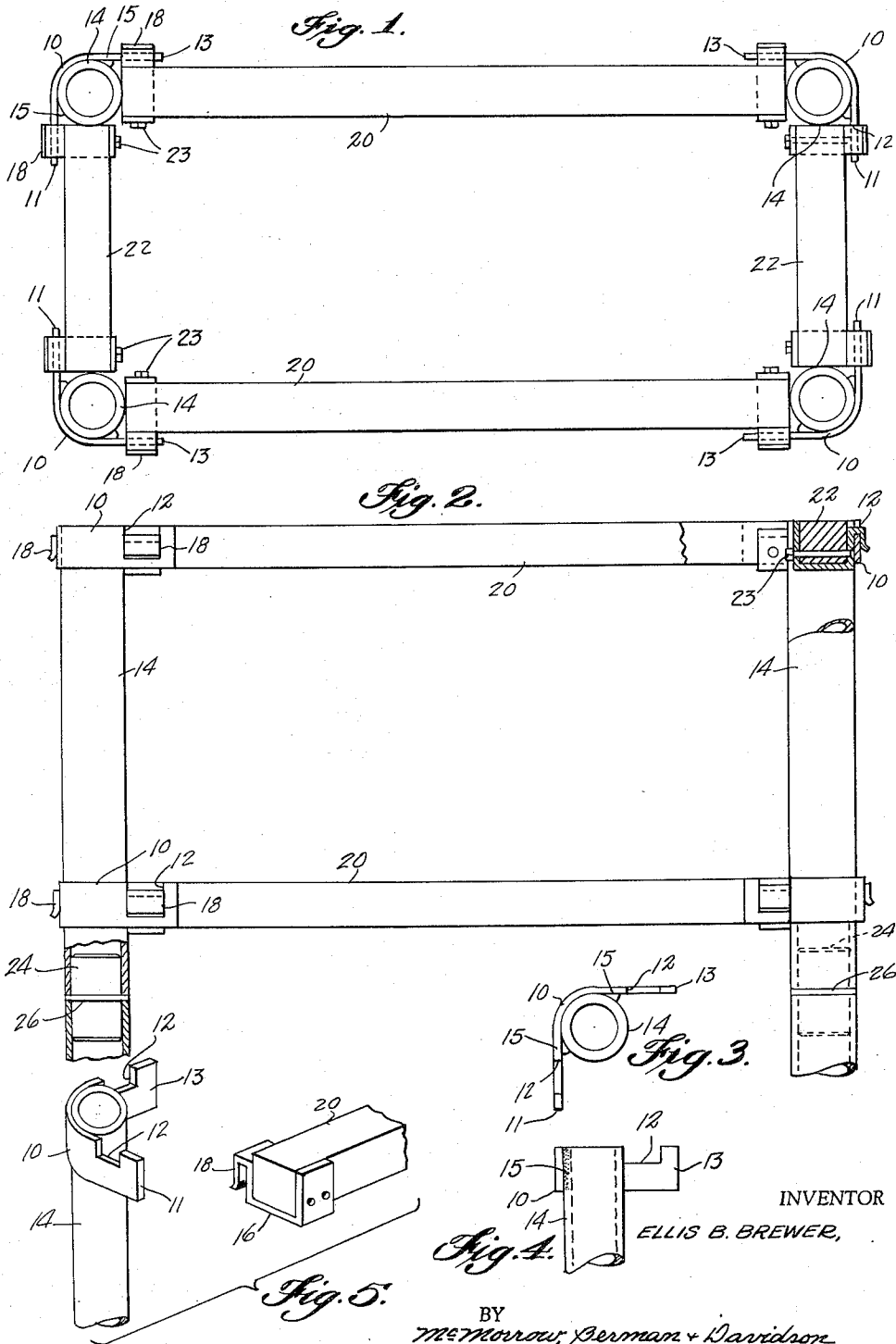
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ANGLE TUBE BRACKET AND HANGER ASSEMBLY

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ANGLE TUBE BRACKET AND HANGER ASSEMBLY

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1 Claim. (Cl. 287—54)

This invention relates to supporting brackets, and more particularly has reference to a bracket which is particularly adapted for use in supporting the rails of scaffolds, fences, benches, cabinets, tables, and other structures.

One important object of the present invention is to provide an angle tube bracket and hanger assembly which is so designed as to be possessed of considerable versatility, thus to permit the bracket to be used, without modification or redesign thereof, in any of the various structures noted above, as well as in other structures for which it may be suited.

Another object of importance is to provide a device of the type stated which will be so designed as to eliminate waste of material. Heretofore, much lumber and labor has been lost during the erection and dismantling of scaffolds, temporary buildings, and like structures. When structures of this type are dismantled, there is ordinarily a considerable amount of waste. However, using an angle tube bracket and hanger assembly formed in accordance with the present invention, the waste is eliminated practically entirely, since the various portions of the structure can be reused whenever desired.

Another object of importance is to provide a device of the type stated which, when assembled with side rails of a framework, can thereafter permit the complete assembly of a selected structure, such as a bench, scaffold, or the like, without use of any tools.

Still another object is to provide a device of the type stated which will be so designed as to facilitate the use of strong but light materials, such as steel, aluminum, and the like.

A further object of importance is to provide an angle tube bracket and hanger assembly which, when incorporated in a knock down structure such as a scaffold, will be highly compact, and will be capable of storage in a minimum of space.

A further object of importance is to provide an angle tube bracket and hanger assembly which, when being moved from place to place, can be inserted through small openings, such as fire doors in boilers, manholes in vertical tanks, basement windows, etc.

Yet another object is to provide an angle tube bracket and hanger assembly which will be characterized by its strength, rigidity, and low cost.

Other objects will appear from the following description, the claim appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a top plan view of a framework formed through the use of brackets and hanger devices formed in accordance with the present invention;

Figure 2 is a side elevational view, portions being broken away and other portions being shown in section;

Figure 3 is a top plan view of the bracket, per se;

Figure 4 is a side elevational view of said bracket, an associated supporting tube being illustrated fragmentarily; and

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Figure 5 is an exploded perspective view, portions being broken away, of one of the angle tube brackets and its associated hanger member.

The reference numeral 10 has been applied in the several figures of the drawing to an angle tube bracket formed in accordance with the present invention, and as will be noted from Figures 3, 4 and 5, each bracket 10 is formed from a length of strap metal material bent substantially to a right angular shape. As a result, each bracket includes perpendicularly related legs 11, 13, said legs merging into a mid-length portion curved through 90° as best shown in Figure 3.

Formed in the outer end portions of the legs of each bracket are upwardly opening, rectangular notches 12, for a purpose to be made presently apparent.

Each of the lengths of strap material is fixedly secured by welds 15, at the mid-length portions thereof, to an upstanding, tubular support 14. In the illustrated example of the invention, each tubular support 14 is used as a corner post, and has two of the brackets fixedly secured thereto, at locations spaced vertically of the tube.

It will be understood, at this point, that each vertical support tube 14 can be of any desired length, and can have any number of brackets 10 secured thereto. Further, the brackets can be spaced in any desired arrangement. The particular arrangement would depend, of course, upon the particular structure being erected, and might vary, depending upon the scaffold, bench, temporary building, bleacher, etc. being erected.

In any event, carried by each bracket member 10 is a pair of hanger members 16. The hanger members 16 are identical to one another, so the description of one will suffice for the other. Each hanger member is formed from a length of flat bar material, and as shown in Figure 5, said length of material at one end is bent to a U-shape, the length of material at its other end being formed to an inverted L-shape. The inverted L-shaped portion of the hanger member, at its free end, is turned downwardly to facilitate application of the hanger member to its associated bracket 10.

The hanger members are adapted for receiving the ends of side and end rails 20, 22 respectively. The several rails are fixedly secured within their associated seats in the hanger members, by means of bolts 23 or equivalent fastening elements, and once the rails have been secured to the hanger members in this manner, the further use of tools is unnecessary. As a result, and assuming for example that the hanger members and brackets are being used in scaffolding, the hanger members can be secured to scaffolding rails during the manufacture of the scaffold. Subsequently, when the scaffold is being erected or dismantled, the use of tools of any type is not required.

In use of the invention, and assuming for example that one is erecting a bench framework as shown in Figures 1 and 2, the first step would be to connect the upstanding tubes by engaging the hanger members at opposite ends of one of the rails 20 or 22 with their associated bracket members. In other words, one might take the side rail 20, for example, and engage the hanger members thereof in the adjacent notches of adjacent bracket members 10. To engage the hanger members in the notches, it is merely necessary that the inverted L-shaped portions 18 be positioned to straddle the notched part of a bracket member leg. In this way, the inverted L-shaped portion 18 of each hanger member is engaged in a notch 12, and will be held against movement in any direction except upwards while so engaged.

By reason of the arrangement illustrated and described, it will be seen that a plurality of the support tubes 14 can be disposed in rectangularly spaced relationship. The support tubes 14, when so disposed, are braced in their

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rectangularly spaced relationship by the horizontally disposed side and end rails 20, 22. The rails, as will be noted from Figure 1, abut directly against the side wall of each tube, thus to cause the entire structure to be rigidly constituted and held against wobbling or undesired looseness.

From the construction illustrated and described, it will be seen that the angle tube bracket and hanger assembly constituting the present invention can be adapted to any of various uses. For example, the construction can be adapted for erecting bench frames, table frames, or the like. When erecting scaffolding, the tubes 14 can be superposed one upon the other, in coaxial relationship. The means used for connecting the vertically aligned tubes is shown to particular advantage in Figure 2, and includes a sleeve member 24 the opposite ends of which fit into the adjacent ends of abutting tubes, the sleeve member being provided medially between its ends with a circumferential collar 26 that is interposed between the end edges of said abutting tubes. In this way, the adjacent tubes are connected in vertical alignment, and the structure can be erected to any desired height by this means. Scaffolding can thus be erected in minimum time and with little difficulty, with the scaffolding taking any shape desired. The scaffolding can be of a selected height, and of a selected width, and the construction facilitates the erection of a protective fence at the upper end of the scaffold, open toward the work but closed at the sides and back of the scaffold.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claim.

What is claimed is:

A quickly detachable coupling for joining a pair of angularly related, horizontal rails to a vertical post, comprising: a bracket member adapted to be affixed to a vertical post and formed of a length of strap metal material, said member including a pair of fixedly connected legs each lying wholly in a vertical plane, said legs being

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angularly related to each other and each leg having a horizontally extending top edge formed with an upwardly opening notch spaced from the notch of the other leg and communicating with the opposite faces of the leg in which it is formed; and a pair of like hanger members each formed from a length of strap metal, each hanger member including a U-shaped portion having a flat bight lying wholly in a horizontal plane to form a flat, horizontally disposed support for an adjacent end of a horizontal rail overlying the bight, said U-shaped portion having flat, wide arms extending upwardly in vertical planes from opposite ends of the bight for embracing the supported rail between them, each hanger member further including a portion of inverted L-shape coextensive in width with and extending from the upper edge of one of said arms to engage in the notch of an adjacent bracket member leg, said inverted L-shaped portion being disposed wholly to one side of the U-shaped portion and including a flat part lying wholly in a horizontal plane, said flat part being rigid along one edge with and extending laterally outwardly from said upper edge of said one arm, said inverted L-shaped portion further including a second flat part depending in a vertical plane from the opposite edge of said horizontal part in closely spaced, parallel relation to the plane of said one arm, said horizontal part removably engaging in and extending transversely of the associated notch, said vertically depending part and said one arm being spaced apart a distance substantially equal to the thickness of the bracket member leg in which the associated notch is formed, said depending part and said one arm lying in face to face contact with the opposite faces of said adjacent bracket member leg.

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