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DEMOUNTABLE STAIRWAY UNIT

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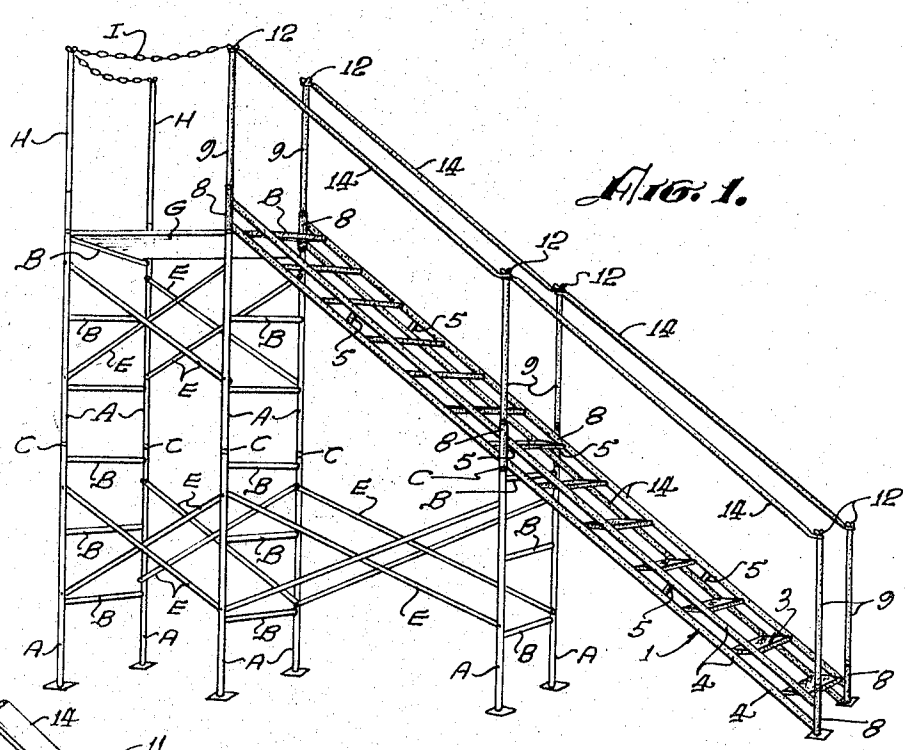


FIG. 1.

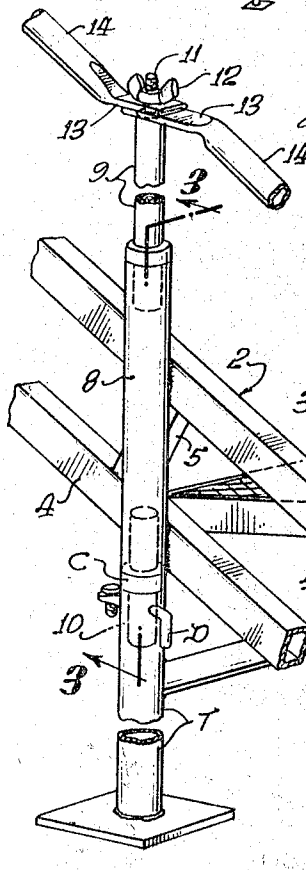
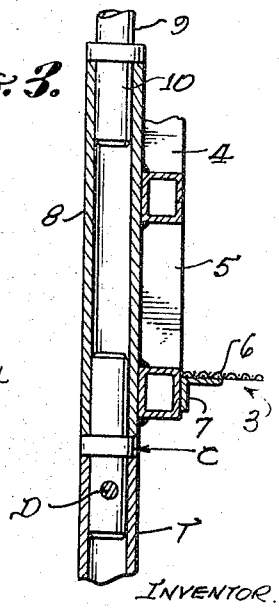


FIG. 2.

FIG. 3.



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DEMOUNTABLE STAIRWAY UNIT

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This invention relates to accessories for erecting buildings and the like and more particularly to a prefabricated stairway capable of incorporation in standard steel scaffolding as a replacement for ladders.

In building construction, one of the most frequent sources of injury to workers are activities involving ascending or descending ladders and the present invention has for its principal objective the provision of a prefabricated flight of metal stairs which may be readily supported on the standard steel scaffolding employed in all buildings of more than one story and which stairway may be installed and removed as a unit and which, further, while being sufficiently strong to carry the loads to which it would normally be subjected in use is sufficiently light in weight to be readily installed and removed as a unit and, still further, which requires no more or other tools to install and remove than are required for the erection and removal of the ordinary tubular steel scaffold structure.

With the foregoing objects in view, together with such additional objects and advantages as may subsequently appear, the invention resides in the parts and in the construction, combination and arrangement of parts described, by way of example, in the following specification of a presently preferred embodiment of the invention, reference being had to the accompanying drawings which form a part of said specification and in which drawings:

FIG. 1 is a perspective view of a stair unit embodying the invention as installed on a supporting structure of conventional tubular steel scaffolding,

FIG. 2 is a greatly enlarged fragmentary perspective view showing the details of construction of the mounting of the stair treads and the mounting of the stairway unit on the scaffold structures, and

FIG. 3 is a fragmentary sectional view taken on the line 3—3 of FIG. 2.

The most common form of demountable steel scaffolding comprises vertical supporting units each comprising a pair of steel tubes A which are interconnected in parallel relation by cross braces B welded thereto adjacent the ends and midlengths of the members, the tubes being of a standard modular length of approximately one-half the distance between successive floors in a building. These supports are connected by plug connectors C having opposed ends fitting closely in the adjacent ends of the tubes of pairs of these supports, said connectors having a short center portion of the same diameter as the exterior of the supporting element tubes. If desired, the connectors may be secured in position by suitable dowel pin devices such as shown at D. Pairs of these support members are secured in laterally spaced vertical relation by a series of diagonal brace members E which are usually formed of tubular metal having flattened ends pierced by holes and the vertical members A are usually provided with laterally extending studs at the sides thereof adjacent each other on which the pierced ends of the cross brace members E are secured by wing nuts or the like.

The stair unit 1 of the present invention includes stringer members 2 disposed at each side of the treads 3. Each stringer member comprises a pair of rectangular tubular members 4 disposed in parallel relation and at such lateral spacing to each other that the front corners of the treads are welded to one of said tube members and the rear corners are welded to the other of the tube

members. Additionally, at each end and at certain intermediate points, the members 4 are interconnected by spacer members 5, 5 welded thereto. The treads may be of any suitable construction, e.g., a metal grating 6 bounded by and welded to a steel band 7 which, in turn, is suitably welded to the stringer members in such relation that the front edge of each tread is substantially vertically above the rear edge of the next lower tread.

As here shown, the stairway is of such length as to extend from the ground level to a second floor level. The upper end of the stair at each side thereof is provided with one each of a pair of short tubes 8, 8, welded to the outer surfaces of the stringer members at substantially right angles to the surface planes of the treads, said tubes being of the same inner and outer diameters as the vertical members of the scaffold structure and extending slightly above and below the stringer members. Similar pairs of tubes 8, 8 are welded to the stringer members at the midlength and lower end of the stair unit. These tubular members 8 serve as the mounting means for the stair unit by fitting over the upper ends of connectors C on the scaffold structure which are disposed at the upper end midlength of the stair unit and over suitable plugs carried by ground engaging pad elements F at the lower end. Since prefabricated metal scaffolding is formed in modular lengths of which a plurality is equal to one story in height, it is merely a matter of lateral spacing to support the stairway at midlength by a standard modular component of the scaffolding. The upper ends of the tubular members 8, 8 are employed to support a handrail structure comprising vertical posts 9 having lower ends 10 received in the upper ends of the tubes 8 to the extent permitted by stop collar portions 11 which engage the ends of the tubes 8. The posts 9 thence extend upwardly to a desired handrail height and terminate in smaller diameter vertical threaded studs 11 carrying wing nuts 12 which removably secure the flattened and angularly bent ends 13 of tubular metal handrails 14 to the ends of the posts as best shown in FIG. 2.

The scaffolding structure at the head of the stair is preferably rectangular in plan to support a landing area G which may be formed of metal plate or of suitable lumber material, e.g., one or more heavy plywood sheets, resting on the uppermost cross braces B, and posts H similar to the posts 9 may be mounted in the rearmost of the members A with the upper ends thereof connected by suitable guard means such as the chain I above those edges of the landing G which are not adjacent to either the stairway or other passage leading from the landing area G.

While in the foregoing specification there has been disclosed a presently preferred embodiment of the invention, such disclosure has been by way of example. Accordingly, the invention is not to be deemed to be limited to the precise details of construction thus disclosed and the invention will be understood to include as well all such changes and modifications in details of construction and of modification to suit other types of scaffolding as may come within the purview of the appended claims.

I claim:

1. A stairway unit for demountable installation on a demountable scaffolding structure of the type built up of vertically disposed, tubular modular components and horizontal connecting components for adjacent ones of the vertical, tubular, modular components; said stairway unit comprising a pair of spaced parallel stringer elements to which the opposite ends of a plurality of tread elements are secured and said stringer elements additionally including means capable of being interposed between for demountable engagement with selected adjacent ones of the vertical, tubular components of the scaffold-

ing structure in such relation thereto that the top surfaces of the treads are disposed in substantially horizontal planes.

2. A stairway unit as claimed in claim 1 in which said scaffolding engaging means on said stringer elements additionally serves as supporting means for a plurality of hand rail supporting post elements secured thereto and for hand rails secured to said posts.

3. A stairway unit as claimed in claim 1 in which the tubular vertical modular components of the scaffolding structure are connected together in end-to-end relation by plug type connectors and in which said scaffolding engaging means on said stringer elements comprises tubular elements secured to said stringer elements at least at each end of said stringer elements and positioned on said

stringer elements for supporting engagement on vertically disposed plug type connectors of the scaffolding structure.

4. A stairway unit as claimed in claim 3 in which said tubular elements carry demountable posts which support hand rails for said unit.

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