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SCAFFOLDING BRACKET

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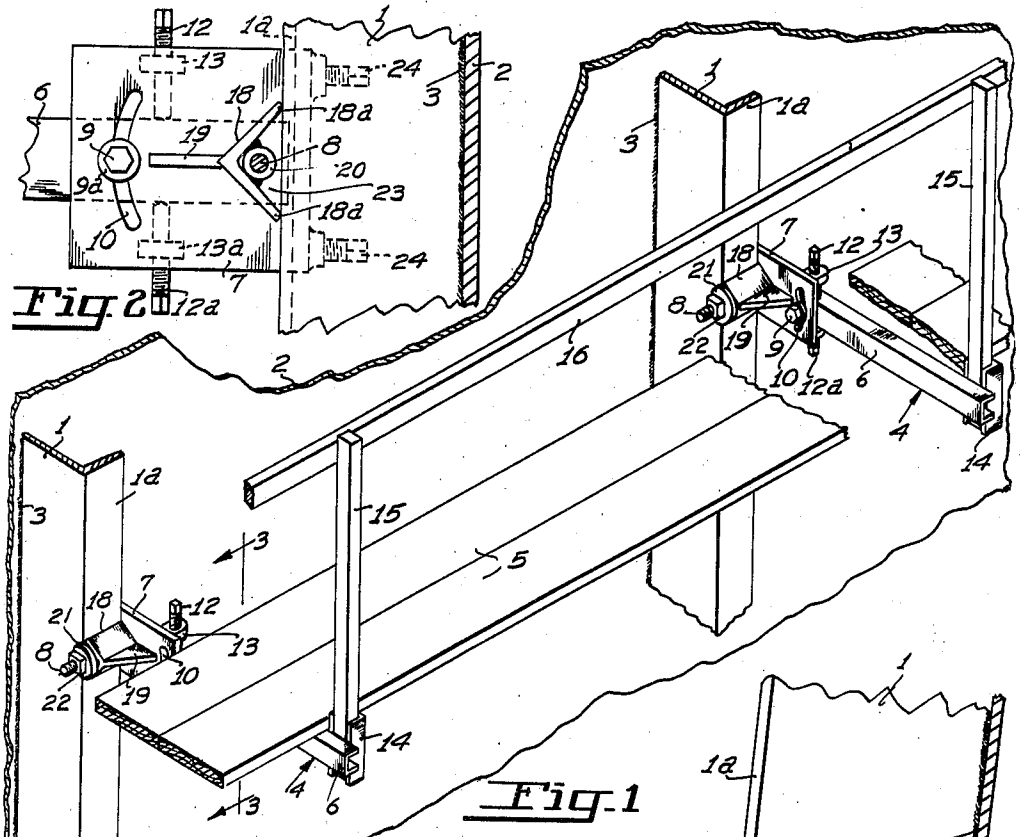


Fig. 1

Fig. 2

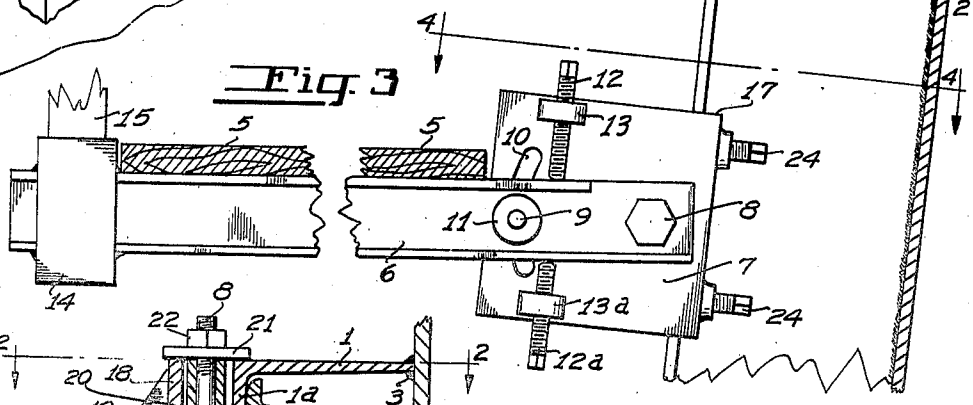


Fig. 3

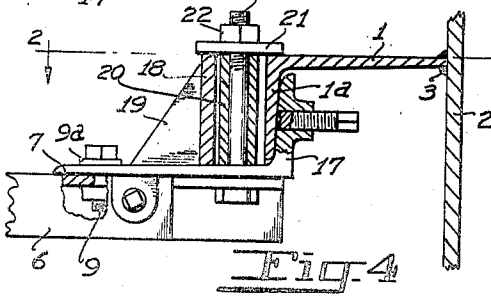


Fig. 4

INVENTORS
Robert L. Brown
Dewey R. Brown

BY

ATTORNEY

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SCAFFOLDING BRACKET

Robert L. Brown and Dewey R. Brown,
Portland, Oreg.

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9 Claims. (Cl. 304—14)

Our invention relates to scaffolding used in construction work and has particular application to scaffolding as used in constructing ships. It is necessary to provide scaffolding whenever a structure is built which has substantial height so that workmen can stand upon the scaffolding to raise the additional courses and to fasten them in place. In the construction of ships it is common practice to form the ribs thereof in advance of the sheeting upon the exterior of the hull and said ribs are relatively strong. It is common practice to make said ribs of so-called ship channel which might be in the form of a true channel member or might be in the form of an angle member. In either event, the web of the ship channel extends normal to the hull and is of substantial depth and terminates in a laterally turned flange.

We have discovered that relatively strong movable scaffolding can be constructed to engage said rib members and can be moved from place to place without requiring the construction of scaffolding leading down to some foundation. In other words we utilize the ribs of the ship itself as the vertical members for supporting the scaffolding and releasably secure arms thereto for supporting the staging.

A further and more specific object of our invention is to provide scaffolding of this character which may be adjusted angularly with respect to the vertical members, such as said ribs, so that the staging will be arranged level and truly horizontal even though the ribs extend obliquely to a vertical plane.

A further object of our invention is to provide arm members in scaffolding supports which are simple, strong, secure and which may be made either left or right hand depending upon the position thereof. The lateral webs of the ship channels are commonly made of tapered sections and we form a pocket upon a fastening plate secured to one end. Said pocket is tapered at a complementary angle so as to receive said lateral flanges. A bolt or other fastening means is provided for forcing the lateral flange into said pocket and the angle of said flange and said pocket tends to promote a tight and secure grip independent of wear of the parts or slight irregularities or scale thereon. Said pocket is formed so as to have two jaw members spaced apart at opposite sides of the pocket and one of the jaw members is formed with two spaced relatively sharp edges. Said jaw thus tends to bite into the lateral flange of the rib so as to prevent slippage thereon.

Further and other details of our invention are hereinafter more fully described with reference to the accompanying drawing, in which:

Fig. 1 is a perspective view of scaffolding embodying our invention shown attached to a fragmentary portion of the hull of a ship, said scaffolding being shown secured to the ship channels thereof, parts being shown broken away to disclose details of our invention which would otherwise be concealed;

Fig. 2 is a plan view, partly in section, taken on the line 2—2 in Fig. 4;

Fig. 3 is a side elevation of one of the arms embodying our invention taken substantially on the line 3—3 in Fig. 1, and

Fig. 4 is a fragmentary sectional view taken on the line 4—4 in Fig. 3 with some parts thereof shown in section.

Our invention is adapted to be used generally in construction work in which vertical structural members are used having lateral flanges and to which members, walls, plates or other parts are to be secured. Our invention has particular application to ship building and it is in connection with such use that our invention is illustrated, but it is to be understood that we do not deem our invention limited to such specific use. In the construction of a ship vertically extending ship channels 1 are provided and to such channels plates 2 are secured and it is common at the present time to secure said plates to the channels by welding and the shading in the drawing is intended to indicate welding, such as at 3.

Each of such ship channels is provided with a laterally extending flange 1a. It is common practice to extend said flanges all in one direction, as is shown in Fig. 1, but inasmuch as the scaffold arms embodying our invention are symmetrical about a longitudinal axis said arms may be reversed without requiring structural change. Said arms may also be used at either side of a ship, that is they may be either left hand or right hand members merely by turning them over. Said arms 4 are the principal members supporting the staging and embodying our invention. Planking or staging 5 is supported by said arms and rests upon the upper surface thereof.

The two arms are interchangeable, as has been pointed out, and thus but one of such arms will be described and similar reference numerals will be given to the similar parts thereof. Each of said arms comprises an elongated member 6 to one end of which a securing plate

7 is pivotally mounted. The pivotal connection is made through a bolt 8 and a locking stud 9 extends through an arcuate slot 10 in said plate and is spaced a substantial distance from the bolt 8. Said arcuate slot is scribed about a radius whose center lies at the center of the bolt 8. The locking bolt is provided with a washer 9a and is threaded into a boss 11 on the elongated member 6. When the locking bolt is seated tightly in place pivotal movement between the plate 7 and the member 6 is prevented. We also provide two opposed set screws 12—12a threaded in lugs 13—13a. The points of said screws engage the opposite sides of the elongated member 6 and constitute auxiliary means for preventing pivotal movement between said plate and said elongated member. As is illustrated in Fig. 3 the ship channels or other vertical members may be inclined obliquely to a vertical plane and it is necessary that the arms be pivotally mounted so that the planking or staging may be arranged level and on a horizontal plane. At the free end of each of said arms 4 we provide a stake pocket 14 adapted to receive a vertical member 15 for guard rail 16.

The securing plate 7 is adapted to lie in a vertical plane and carries an angular jaw member 17. Said jaw member preferably is made of a section of material substantially identical to the ship channel or other vertical member to which the scaffolding is to be attached. The lateral flanges of the ship channel and of the jaw member are tapered and said two tapers complement each other. Spaced from the inner face of said jaw member is a second jaw member 18. Said second jaw member preferably has two relatively sharp edges 18a which tend to bite into the back of the lateral flange 1a so as to prevent slippage. Said second jaw member is shown as being constructed of a section of angle iron and is secured by a web 19 to the angular jaw member 17. The pivot bolt 8 extends within the two legs of the two jaws members and preferably a spacer 20 is secured to the two legs of said angular members and the bore thereof fits more or less snugly about the pivot bolt 8 but permits relatively free movement of said bolt within said bore.

Said bolt is provided with a washer 21 of relatively large diameter which is adapted to span the two legs of the second jaw member 18 and to overlie the back of the ship channel, in the manner shown in Fig. 4. A nut 22 is secured to the threaded shank of the pivot bolt 8 and when said nut is tightened in place it tends to force the lateral flange 1a into the pocket 23 formed between opposed faces of the jaw members 17 and 18. We preferably provide one or more set screws 24 in the angular jaw member 17 to engage the flange 1a of the ship channel so as to prevent inadvertent slippage. The edges 18a of the second jaw member 18 tend to bite into the back of the flange 1a and said parts tend to bind to prevent slippage. The taper of the lateral flange of the ship channel and of the jaw also tend to produce a secure seat to prevent slippage and the bolt 8 tends to hold such parts in tight engagement. All of said parts supplement each other and insure against slippage or release of engagement of the parts. The overlap of the washer 21 upon the back of the ship channel 1 as well as the engagement of the set screws 24 tend to prevent the arm from being released laterally from the ship channel.

We claim:

1. Scaffolding adapted to be detachably secured to a structure having vertically extending structural members, comprising a pair of laterally projecting arms adapted to be clamped to said structural members, each of said arms comprising an elongated member and a securing plate secured to one end thereof, means for holding a guard at the opposite end thereof, each of said securing plates having a vertically extending jaw adapted to be locked to a vertical structural member.

2. Scaffolding adapted to be detachably secured to a structure having vertically extending structural members, comprising a pair of laterally projecting arms adapted to be clamped to said structural members, each of said arms comprising an elongated member and a securing plate secured to one end thereof; means for holding a guard at the opposite end thereof, and each of said securing plates having a vertically extending jaw having two relatively sharp edged jaw members adapted to be locked to a vertical structural member.

3. Scaffolding adapted to be detachably secured to a structure having vertically extending structural members, comprising a pair of laterally projecting arms adapted to be clamped to said structural members, each of said arms comprising an elongated member and a securing plate secured to one end thereof, means for holding a guard at the opposite end thereof, and each of said securing plates having a vertically extending jaw having two relatively sharp edged jaw members extending obliquely to a horizontal plane and adapted to be locked to a vertical structural member.

4. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members provided with a lateral flange of tapered section, a laterally projecting arm comprising a securing plate and an elongated member secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces thereof, and one of said jaw faces being tapered to complement the taper of the lateral flange of said structural member, said pocket being proportioned to receive said flange quite tightly.

5. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members, a laterally projecting arm comprising a securing plate and an elongated member secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces thereof, and means adapted to engage said structural member and to force the flange tightly into said pocket.

6. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members, a laterally projecting arm comprising a securing plate and an elongated member secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces thereof, and a threaded clamping screw adapted to engage said structural member and to force the flange tightly into said pocket.

7. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members, a laterally projecting arm comprising a securing plate and an elongated member secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces

thereof, one of said jaw faces defining two relatively sharp edges extending transversely of said pocket.

8. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members provided with a lateral flange of tapered section, a laterally projecting arm comprising a securing plate and an elongated member secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces thereof, one of said jaw faces being tapered to complement the taper of the lateral flange of said structural member, said pocket being proportioned to receive said flange quite tightly, means adapted to engage said structural member and to force the flange tightly into said pocket, the other of said jaw faces defining two relatively sharp edges extending transversely of said pocket, said means lying intermediate said edges.

9. In scaffolding adapted to be detachably secured to a structure having laterally projecting structural members provided with a lateral flange of tapered section, a laterally projecting arm comprising a securing plate and an elongated member pivotally secured to one end thereof, said securing plate comprising a pair of clamping jaws defining a pocket between the opposed faces thereof, one of said jaw faces being tapered to complement the taper of the lateral flange of said structural member, said pocket being proportioned to receive said flange quite tightly, a threaded clamping screw adapted to engage said structural member and to force the flange tightly into said pocket, the other of said jaw faces defining two relatively sharp edges extending transversely of said pocket, and said clamping screw lying intermediate said edges.

ROBERT L. BROWN.
DEWEY R. BROWN.