May 9, 1950 A. H. HAWES 2,506,640

SCAFFOLDING CLAMP

Filed Nov. 27, 1946 2 Sheets-Sheet 1

FIG. 1.

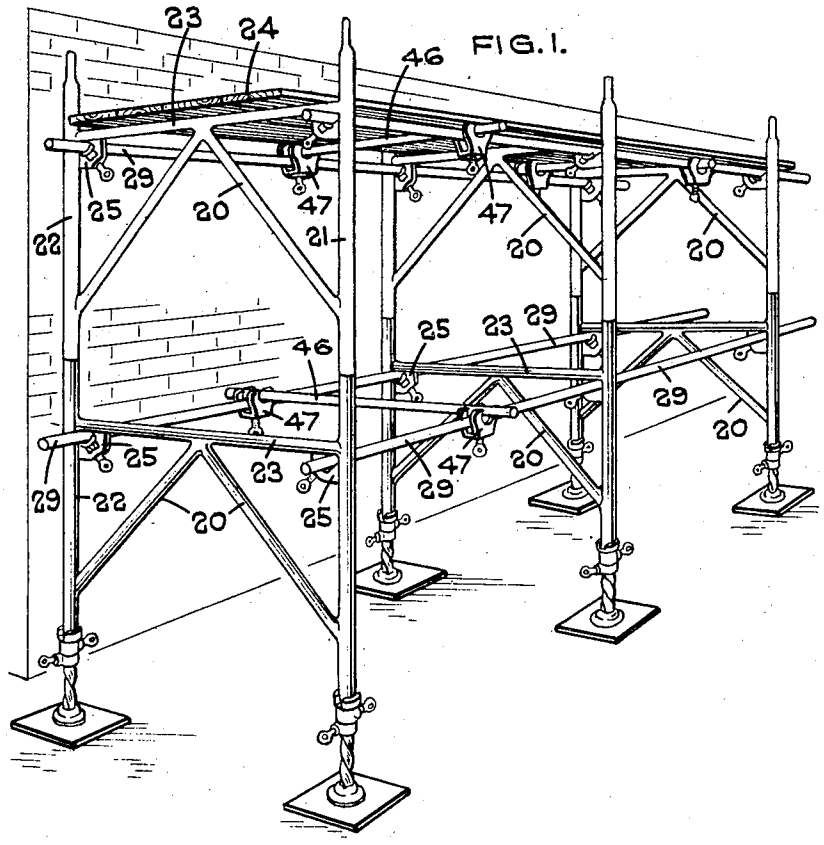
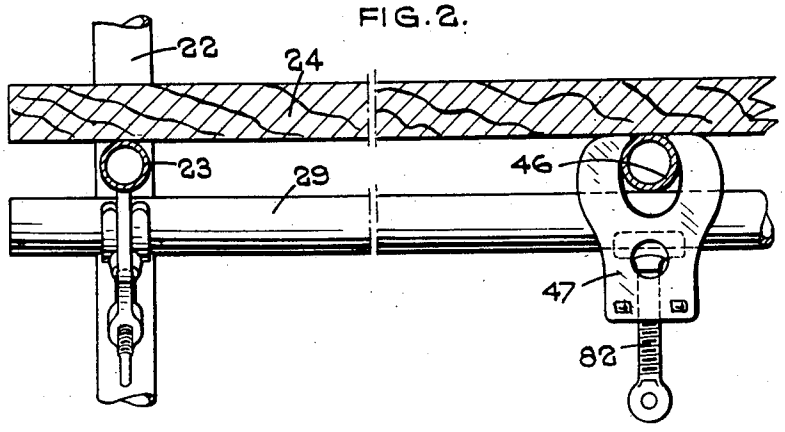


FIG. 2.



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FIG. 3.

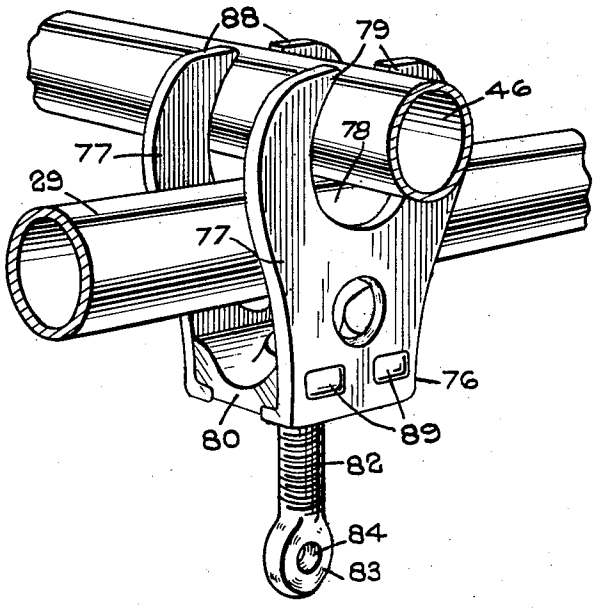


FIG. 4.

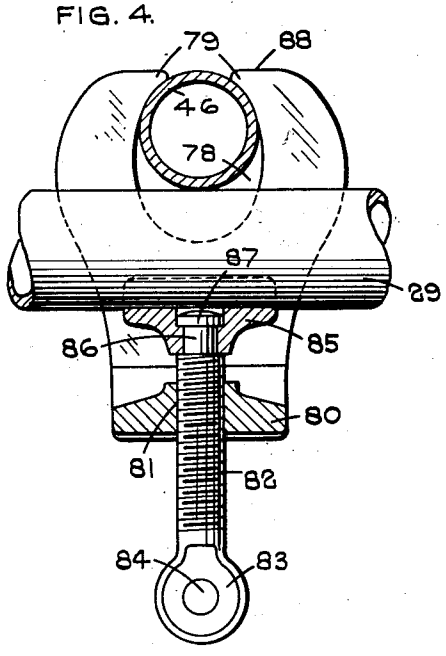
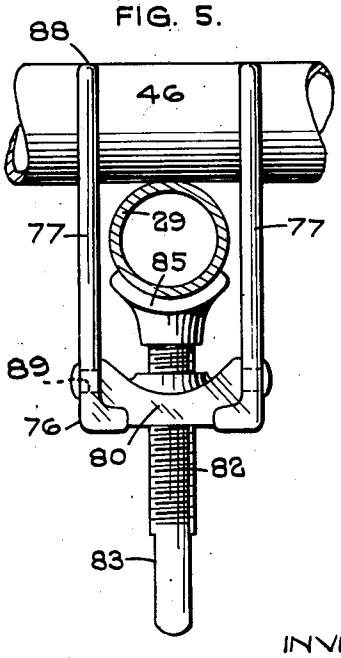


FIG. 5.



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Patented May 9, 1950 2,506,640

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2,506,640

SCAFFOLDING CLAMP

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Application November 27, 1946, Serial No. 712,482
In Great Britain December 19, 1945

4 Claims. (Cl. 304—40)

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This invention relates to scaffolding of the kind comprising substantially horizontal ledger and putlog tubes of circular cross section, the putlog tubes being laid above and in transverse relationship to the ledger tubes and being connected thereto by scaffolding clamps known as putlog clamps, battens being then laid upon the putlog tubes to form a substantially horizontal platform or staging for workmen.

In assembling such a structure from scaffolding of the above kind it is at present usual to erect at suitable intervals two rows of vertical columns, adjacent columns in the two rows being connected together by transverse putlog tubes secured to the columns by separate clamps, each pair of columns so formed being also connected to the next pair or pairs by horizontal ledger tubes, which again are held in place by separate clamps. A staging or working platform, consisting of a plurality of parallel wooden battens, is then laid upon the putlog tubes to form the platform or staging.

With such an arrangement, unless the transverse putlog tubes are very carefully located during assembly of the scaffolding, the battens laid thereon will not provide a level platform and it may be necessary to overlap the ends of adjacent battens, or adjacent sections of the staging, with the result that dangerous steps liable to trip a workman are produced.

With a view to overcoming this difficulty, I have in my prior Patent No. 2,472,423 described and claimed for use in the erection of scaffolding of the above kind, a scaffold frame unit comprising two vertical tubular members rigidly and permanently connected together by a horizontal member which is adapted to engage and support a substantially horizontal staging or platform extending transversely of the frame unit, and a pair of clamping devices secured permanently to the frame unit which are adapted for clamping engagement with tubular scaffolding elements forming ledger elements and extending transversely of the frame unit to secure the unit to a second similar frame unit or other structure, said clamping devices being disposed one adjacent to each junction between the said horizontal and vertical members of the frame unit, so that they are adapted to support the transverse ledger elements in a position relative to the horizontal member of each unit for carrying putlog elements parallel to the horizontal member and at the same level to provide a level support for a platform or staging.

The object of the present invention is to provide a new or improved scaffolding clamp for securing the putlog elements to the ledger elements in scaffolding of the kind specified and which is particularly applicable to the scaffolding forming the subject of my prior patent aforesaid.

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Referring to the drawings:

Figure 1 is a perspective view of one form of scaffolding structure incorporating scaffolding clamps in accordance with this invention.

Figure 2 is an enlarged cross sectional view of the upper part of the structure shown in Figure 1 and depicting one of the scaffolding clamps aforesaid.

Figure 3 is a perspective view of the scaffolding clamp shown in Figure 2.

Figure 4 is a cross sectional side elevation of the clamp shown in Figure 3, and

Figure 5 is an end elevation of the same clamp.

In Figure 1 there is depicted the scaffolding structure described in my prior patent aforesaid which comprises scaffold frame units indicated generally at 20, each unit including two vertical tubular members 21, 22 rigidly and permanently connected together by a horizontal member 23, which in the construction illustrated is also formed as a tube, which horizontal member is adapted to engage and support a substantially horizontal staging or platform which extends transversely of the frame unit, which platform or staging in the arrangement illustrated is constituted by a plurality of wooden battens 24.

Each frame unit further comprises a pair of clamping devices 25 disposed adjacent to the junction of the horizontal member 23 with each of the two vertical members 21, 22 as described in my prior specification and the clamping devices 25 are adapted to receive and engage transversely extending tubular ledger elements 29.

In utilizing such frame units for the supporting of a substantially horizontal platform or staging for use, for example, in the construction of a wall, a number of similar units would be taken and disposed in transversely and horizontally spaced relationship as shown in the lower part of Figure 1, the units being connected rigidly together by placing the horizontal transversely extending ledger elements 29 in position and then tightening the clamping screws of the built-in device 25.

The horizontal platform or staging formed of the battens 24 would then be laid upon horizontal members 23 of the lower units shown in Figure 1 with the battens extending transversely of the said horizontal members.

As is described in my specification aforesaid

the arrangement is such that the ledger elements **29** are supported by the clamping devices **25** in such a position that when another scaffolding element known as a putlog element is laid transversely across the diameter of the ledger elements, its upper surface will be level with the upper surface of the members **23** to provide a level support for the battens **24**.

This will be understood from a consideration of Figures 1 and 2 of the drawings in which the putlog elements in the form of short metal tubes of the same diameter as the ledger elements are indicated at **46** extending parallel to and intermediate the horizontal members **23** with their upper surfaces level with the upper surfaces of the members **23** as shown in Figure 2. The length of the putlog elements is the same as or slightly greater than the length of the horizontal members **23**, and the putlog elements are secured to the ledger elements by putlog clamps **47** which form the subject of the present invention.

The putlog clamps **47** for securing the putlog elements **46** to the ledger elements **29** are shown more particularly in Figures 3 to 5 of the drawings and comprise each a body of substantially U shape including a pair of parallel limbs **77** spaced apart by a distance sufficient to receive therebetween the ledger element **29** the limbs at their free ends being forked to provide in each end an opening **78** to receive the putlog element **46**, the outer end of each opening having a width less than the diameter of the putlog element and the sides of each opening **78** being curved so that the opening is of somewhat oval shape and the ends **79** of the forks engage with the putlog element and prevent it passing vertically upwardly through the opening. Thus, the limbs **77** comprise a main body portion and two bowed integral arms.

The maximum width of the opening is made somewhat greater than the external diameter of the putlog element.

The two limbs **76** are joined by a connecting part **80** provided centrally with a threaded opening **81** in which works a clamping screw **82**, the head **83** of which is flattened and provided with an opening **84** to receive a tommy-bar, while the inner end of the screw is connected rotatably to a pressure plate **85**, the inner face of which is of part-circular form as shown in Figure 5 and shaped to engage with the adjacent ledger element **29**, the pressure plate being secured permanently to the clamping screw **82** by making the inner end of the latter of reduced section as indicated at **86**, the reduced end passing through a hole in the pressure plate and being riveted over within a recessed portion **87** on the inner face of the plate, so that the inner end of the screw is out of contact with the ledger element **29**.

It is preferred to separate the limbs **77**, **77** by a distance appreciably greater than the diameter of a ledger tube **29**, as best shown in Fig. 5. Thus, the clamp may be turned with respect to the ledger tube to facilitate application of the putlog tube thereto.

By tightening up the screw **82** the ledger element **29** is forced against the putlog element **46** which is thereby pressed against the ends **79** of the clamp limbs and the two elements **29**, **46** are frictionally located against relative movement.

In order to provide a flush surface for the battens where they pass over the putlog clamp above described the free ends of the limbs **77** are flattened as indicated at **88** on their upper sides so that they do not project above the putlog element **46**. As best seen in Fig. 4, the outer ends of the arms are separated by a distance less than the outside diameter of a putlog tube and terminate in a common plane which is substantially tangential to the external surface of the putlog tube **46** when positioned between the arms and against their ends.

As a result a substantially flush surface is presented to the under-side of the battens **24** free from projections so the battens are substantially horizontal and present, if of the same thickness, a substantially flush upper surface thereby avoiding dangerous steps or projections liable to trip a workman on the platform or staging.

In the construction actually illustrated in Figures 3 to 5 the limbs **77** of the clamp are formed separately from the connecting part thereof **80** and are secured thereto by providing the connecting part at opposite sides with a pair of lugs **89** which extend through correspondingly disposed openings in the limbs **77** the free ends of the lugs being riveted over to secure the limbs to the connecting part **80**. Alternatively the limbs **77** may be welded to the connecting part **80**.

With either arrangement, the connecting part **80** can be made of a thickness greater than that necessary for the thickness of the limbs **77** so that the connecting part is of a substantial strength and provides a threaded opening **81** of depth sufficient to provide adequate thread support for the clamping screw **82** and ensures that it is mounted in firm clamping engagement with the ledger element **29** when the screw is tightened.

Such an arrangement would be more difficult to achieve if the connecting part **80** were made integral with the limbs **77** and it would probably be necessary to provide the connecting part **80** with a separate nut welded or otherwise secured thereto for engaging with the clamping screw so as to provide a sufficient depth of screw-thread to engage with the screw.

What I claim then is:

1. For use in clamping to a ledger tube a putlog tube disposed immediately above and transversely to the ledger tube, a substantially U-shaped clamp comprising: a connecting part; a pair of substantially parallel coextending limbs, each joined at one end thereof to said connecting part, said limbs being separated by said connecting part at a distance appreciably greater than the diameter of a ledger tube; the ends of said limbs remote from said connecting part being forked at equal distances from said connecting part to provide on each limb two arms separated by an elliptical opening the major axis of which extends in the direction of the length of the limb, and the minor axis of which is greater than the outside diameter of a putlog tube; and a clamping screw carried by said connecting part and extending therefrom into the opening between said limbs; whereby application of clamping pressure by said clamping screw to a ledger tube disposed between said pair of limbs clamps the ledger tube to a putlog tube extending through the elliptical openings in said limbs and wedges said putlog tube firmly between the arms of each of said limbs.

2. For use in clamping to a ledger tube a putlog tube disposed immediately above and transversely to the ledger tube, a substantially U-shaped clamp comprising: a connecting part; a pair of substantially parallel coextending limbs, each joined at one end thereof to said connecting part, said limbs being separated by said connecting part at a distance appreciably

greater than the diameter of a ledger tube; the ends of said limbs remote from said connecting part being forked at equal distances from said connecting part to provide on each limb two arms separated by an elliptical opening the major axis of which extends in the direction of the length of the limb, and the minor axis of which is greater than the outside diameter of a putlog tube, the outer ends being separated by a distance less than the diameter of a putlog tube; and a clamping screw carried by said connecting part and extending therefrom into the opening between said limbs; whereby application of a clamping pressure by said clamping screw to a ledger tube disposed between said pair of limbs clamps the ledger tube to a putlog tube extending through the elliptical openings in said limbs and wedges said putlog tube firmly between the arms of each of said limbs.

3. For use in clamping to a ledger tube a putlog tube disposed immediately above and transversely to the ledger tube, a substantially U-shaped clamp comprising: a connecting part; a pair of substantially parallel coextending limbs, each joined at one end thereof to said connecting part, said limbs being separated by said connecting part at a distance appreciably greater than the diameter of a ledger tube; each of said limbs comprising: a main body portion, and two integral arms extending away from the end of said limb which is joined to said connecting part, said arms being bowed to define therebetween an elliptical opening the major axis of which extends in the direction of the length of said arms and the minor axis of which is greater than the outside diameter of a putlog tube, the outer ends of said arms being separated by a distance less than the outside diameter of a putlog tube; and a clamping screw carried by said connecting part and extending therefrom into the space between said limbs; whereby application of clamping pressure by said clamping screw to a ledger tube disposed between said pair of limbs clamps the ledger tube to a putlog tube extending through the elliptical openings in said limbs and wedges said putlog tube firmly between the arms of each of said limbs.

4. For use in clamping to a ledger tube a putlog tube disposed immediately above and transversely to the ledger tube, a substantially U-shaped clamp comprising: a connecting part; a pair of substantially parallel coextending limbs, each joined at one end thereof to said connecting part, said limbs being separated by said connecting part at a distance appreciably greater than the diameter of a ledger tube; each of said limbs comprising: a main body portion, and two integral arms extending away from the end of said limb which is joined to said connecting part, said arms being bowed to define therebetween an elliptical opening the major axis of which extends in the direction of the length of said arms and the minor axis of which is greater than the outside diameter of a putlog tube, the outer ends of said arms being separated by a distance less than the outside diameter of a putlog tube, the arms of both limbs terminating in a common plane substantially tangential to the external surface of a putlog tube positioned between said bowed arms of both limbs and pressed against the open ends thereof; and a clamping screw carried by said connecting part and extending therefrom into the space between said limbs; whereby application of clamping pressure by said clamping screw to a ledger tube disposed between said pair of limbs clamps the ledger tube to a putlog tube extending through the elliptical openings in said limbs and wedges said putlog tube firmly between the arms of each of said limbs.

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