

Longitudinally adjustable scaffold bar

THIS INVENTION relates to a longitudinally adjustable bar, more particularly a diagonal scaffold bar, having means at its ends for being releasably secured to the scaffold, the bar comprising an outer tube and, telescopically movable therein, at least one inner tube which is engaged
5 frictionally with the outer tube when in the required position by means of a clamping member in the form of a tube clamp engaging the periphery of the inner tube, the clamping member being secured to the outer tube end near the inner tube.

10 Bars of the kind specified are known and, in particular, are used as diagonals to strengthen the scaffolding. The advantage of telescopically adjustable scaffold bars (usually of two elements) over non-adjustable bars is their greater flexibility of use - in other words they can be used for scaffolds built to a variety of dimensions. Since the adjustable bars make it
15 unnecessary to keep scaffold bars tailored to every scaffold construction in stock, the stock of bars which needs to be stored can be reduced. However, a disadvantage of known telescopic bars is that the inner tube is connected to the outer tube when positioned at the required length only by friction; consequently, the two tubes may shift accidentally relatively to one another
20 when substantial forces are applied to the bar, so that the stability of the scaffold is impaired and it may tilt over. The nature of the construction of the known telescopic scaffold bars is therefore such that the forces they can transmit are limited.

25 It is an object of the invention to enable the provision of a telescopically adjustable scaffold bar of the kind described which, although of the same dimension as the known bars, can transmit considerably greater forces than the latter.

Accordingly, the present invention provides a longitudinally adjustable scaffold bar having a means at each end for releasably securing the bar to a scaffold, the bar comprising: an outer tube; at least one inner member telescopically movable in the outer tube and having a pre-arranged pattern of apertures; a tube clamp attached to an end of the outer tube adjacent the inner member and adapted to be moved into a closed configuration to clamp the inner member; and a pin connected directly or indirectly to the outer tube and movable to and from a position in which the pin extends radially inwardly through one of the said apertures, the arrangement being such that the tube clamp, when in the closed configuration, retains the pin in the said aperture.

In preferred embodiments of the invention, it has been found that the pin, which is disposed on the tube clamp and which engages in one of the apertures in the inner tube, supplements the frictional engagement between the two tubes, which is provided by tightening the tube clamp, by providing a positive connection between the inner and outer tubes. There is therefore a reduced risk of the two tubes forming the bar accidentally shifting relatively to one another; also, partly as a result of this feature, other advantages are provided.

Bars in accordance with the invention have been found to transmit forces as much as three times the forces which comparable known longitudinally adjustable scaffold bars can handle. The coefficients of buckling can therefore be fully used. Because of the increased forces which preferred bars in accordance with the invention can transmit, they are more adaptable in use and therefore it has been possible to reduce the items kept in store by about one-third. Also, preferred bars in accordance with the invention can be adjusted before fitting to exactly the length necessary for a right-angled scaffold assembly, by means of the said apertures which are disposed in the inner tube to a predetermined pattern and in which the pin engages.

The bar is produced as an element having two or more parts, in the form of telescopically engaging tubes. In a two-part construction the inner member of the telescopic arrangement can be a bar instead of a tube.

To facilitate assembly of a preferred embodiment, the tube clamp is in two parts, although a unitary tube clamp is theoretically possible. In a two-part tube clamp, one half of the clamp is preferably connected to the outer tube by way of a support member and the other half of the tube clamp
5 can be hingedly connected by a hinge to the tube clamp half which is secured to the outer tube. The tube clamp is tightened by screws for a clamping action or, for instance, by means of a wedge. In a two-part tube clamp it is preferred to dispose the pin on the tube clamp half which is not connected to the outer tube, since the pin can then be engaged with or
10 disengaged from the aperture in the inner tube more readily by moving the last-mentioned tube clamp half. However, the pin could be disposed on the tube clamp half which is fixedly connected to the outer tube if such connection is by way of a resilient member. Alternatively, the pin can be connected to the outer tube by way of its own support member, in which
15 case the latter can be pivotally connected to the outer tube by way of a hinge. In any case the pin is retained in its aperture by the tube clamp when the clamp is in its closed position. Consequently, the pin in a bar in accordance with the invention is by construction - and in any case when in the clamped state - connected to the outer tube either directly, by way of a
20 separate support member, or indirectly, by way of the tube clamp.

So that the present invention may be more readily understood and so that further features may be appreciated, a preferred embodiment of a longitudinally adjustable scaffold bar in accordance with the invention will
25 now be described by way of example and with reference to the accompanying drawings, wherein:

FIGURE 1 is a side view of a scaffold bar in accordance with the invention;
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FIGURE 2 is a side view of the junction between the telescopic members of the bar; and

FIGURE 3 is a plan view corresponding to Figure 2.
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A scaffold bar as shown in Figure 1 comprises two telescopically engaged members in the form of an outer tube 1 and an inner member 2 in

the form of a tube; the inner member can alternatively be a bar. The tubes 1, 2 each have at their free ends a respective jaw 3, each of which has a self-locking catch 4. The jaws 3 may be used to secure the bar to the scaffolding.

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The inner tube 4 is formed at intervals with apertures 5 arranged to a predetermined pattern.

10 A support member 6 for a tube clamp 8 is secured to the outer tube end near the inner tube 2. The support member extends longitudinally of the tube 1 and supports the clamp 8 at a position adjacent the open end of the tube 1 where the clamp can embrace the tube 2 that is telescopically inserted into the outer tube 1. The tube clamp 8 comprises bottom and top halves 7, 9. The bottom half 7 of the tube clamp 8 is rigidly secured, for
15 example by welding, to the support member end projecting beyond the end of the outer tube 1. The top half 9 of the tube clamp 8 is hingedly connected by a hinge 10 to the tube clamp bottom half 7. A pin 11 is so secured to the tube clamp top half 9 as to extend radially inwards.

20 With the tube clamp 8 open, the inner tube 2 is moved relatively to the outer tube 1 until a desired inner tube aperture 5 which forms part of the pattern registers with the pin 11. The tube clamp top half 9 is then moved into the closed position with the pin 11 engaging in the aperture 5, as can best be gathered from Figure 2.

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In the embodiment shown, the tube clamp 8 is closed by means of a wedge 12. Alternatively, a screwthreaded connection could be provided. The clamp helps provide a frictional engagement, and the pin 11 a positive engagement, with the inner tube 2.

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**CLAIMS:**

1. A longitudinally adjustable scaffold bar having a means at each end for releasably securing the bar to a scaffold, the bar comprising: an outer tube; at least one inner member telescopically movable in the outer tube and having a pre-arranged pattern of apertures; a tube clamp attached to an end of the outer tube adjacent the inner member and adapted to be moved into a closed configuration to clamp the inner member; and a pin connected directly or indirectly to the outer tube and movable to and from a position in which the pin extends radially inwardly through one of the said apertures, the arrangement being such that the tube clamp, when in the closed configuration, retains the pin in the said aperture.
 2. A bar according to claim 1, wherein the pin is located on the tube clamp.
 3. A bar according to claim 2, wherein the tube clamp comprises two halves, a first half secured to the outer tube and a second half not secured to the outer tube, and the pin is located on the second half.
 4. A bar according to any one of the preceding claims adapted to function as a diagonal scaffold bar.
 5. A bar according to any one of the preceding claims wherein the said pin has a cross-section that engages closely with the said aperture.
 6. A bar substantially as herein described with reference to, and as shown in, the accompanying drawings.
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