Feb. 3, 1948. W. A. PARKER 2,435,461

SCAFFOLDING

Filed April 23, 1946 2 Sheets-Sheet 1

Fig.1.

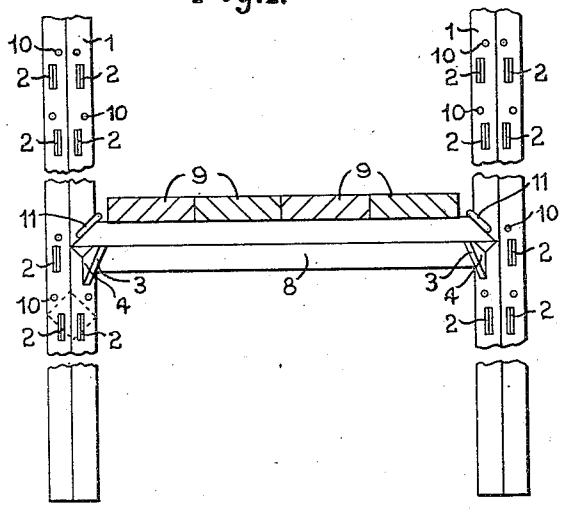

Fig.3.

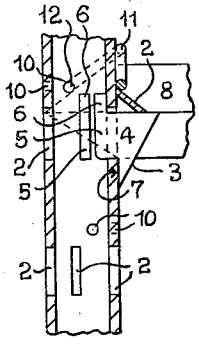

Fig.2.

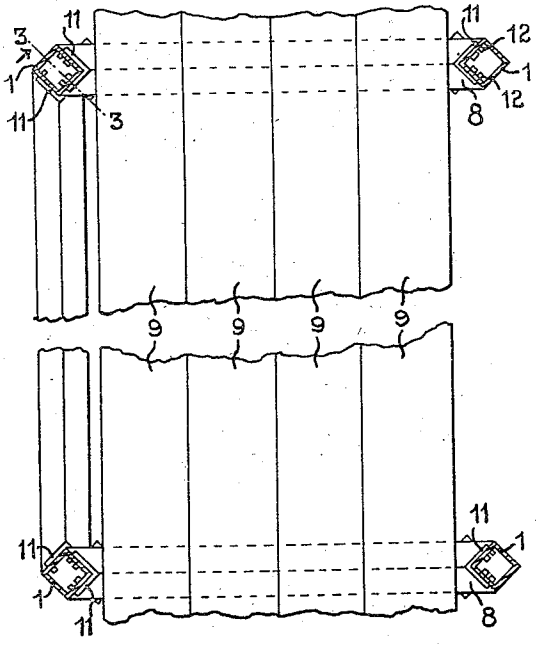

Fig.4.

Fig.5.

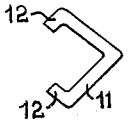

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Fig. 6.

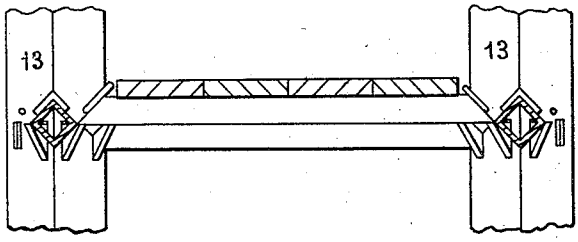
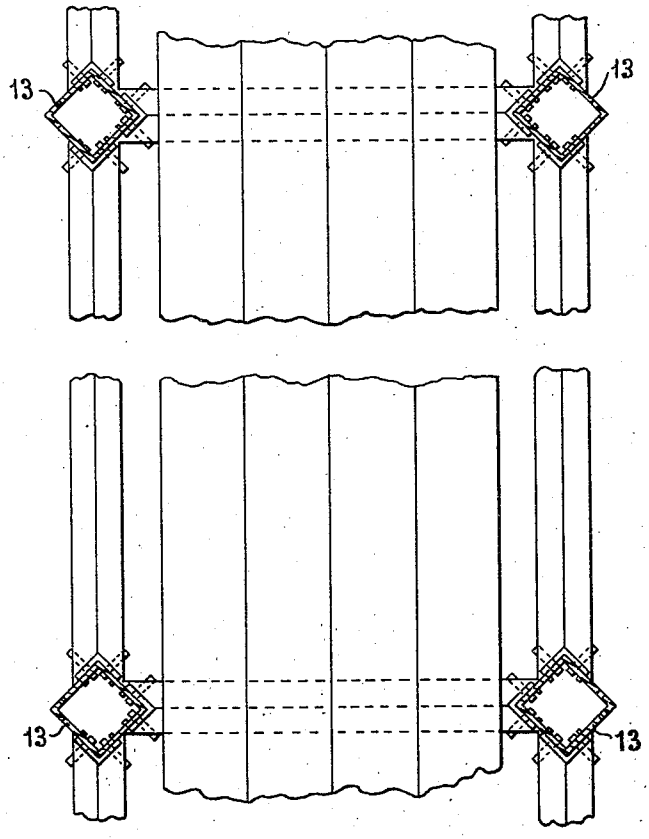


Fig. 7.



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2,435,461

SCAFFOLDING

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4 Claims. (Cl. 304—2)

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This invention relates to scaffolding and has for its object to provide a novel construction which enables scaffolding to be built expeditiously and without the aid of securing screws, nuts or clamps.

A scaffolding in accordance with my invention comprises uprights of flat sided cross-section and having apertures distributed along its length adapted to have brackets hooked into them for engagement by and to support connecting members and also having apertures adapted to be engaged by spring-fixed stop means which act to prevent disengagement of the connecting members from the brackets.

Adjacent uprights are disposed with opposed corners and two slots and brackets are provided for engagement of each end of the connecting member, which end is formed with a V-notch to accommodate two sides of the upright and with slots to engage the brackets, so that lateral, downward and longitudinal displacement of the connecting member is prevented.

The spring-fixed stop means may consist of a springy clip of staple-like form adapted to be forced into apertures provided in the upright and to thereby form a stop which positively prevents material upward displacement of the connecting member.

For corner uprights, the cross-section thereof may be oblong.

For intermediate uprights, the cross-section thereof may be square.

The uprights and connecting members are preferably tubular.

I attain this object by the means illustrated in the accompanying drawings, wherein—

Figure 1 is a fragmentary end view, partly in section of a portion of a scaffolding.

Figure 2 is a fragmentary plan view thereof.

Figure 3 is a view in section taken on line 3—3 of Figure 2.

Figure 4 is a side elevation of a detail.

Figure 5 is a plan view of Figure 4.

Figure 6 is a fragmentary end view, partly in section of a portion of a scaffolding and illustrates another construction.

Figure 7 is a fragmentary plan view thereof.

Referring to the drawings, in the construction shown in Figure 1, I provide uprights 1 of square tubular cross-section having on all four sides vertical slots 2 spaced suitable distances apart along the upright 1 and arranged in pairs of slots at equal heights, the one slot 2 of each pair being in one side of the upright 1 and the other slot 2 of the said pair being in an adjacent side of the

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upright 1. The slots 2 are adapted for engagement by vertical brackets 3, each comprising a part 4 which is substantially triangular in side view and substantially rectangular in plan view and is outside the upright 1, and an integral part 5 which has at the top an upwardly projecting lug 6 and at the bottom leaves the rear side of the said part exposed to form a shoulder 7, the bracket 3 being adapted to be hooked into the slot 2 with a substantially arcuate motion so that the lug 6 lies and bears against the inside of the upright above the slot 2, the bottom of the integral part 5 rests on the bottom edge of the slot and the shoulder 7 bears against the outside of the upright 1 below the slot 2. This form of bracket enables it to be connected in situ by a simple hooking operation at the most opportune time and without the aid of screws, rivets or the like. When placed in position, the bracket 3, due to its construction attaches itself securely to the upright 1.

Tubular connecting members 8 of the same cross-sectional size and shape as the uprights 1 are provided to connect one upright 1 to the next and form horizontal supports for platforms, or foot planks 9 and so forth. Each connecting member 8 has concave V-shaped ends to engage two adjacent sides of the two uprights 1 it connects together. At each end of the connecting member 8 there are two slots in two adjacent sides for engagement with the brackets 3.

The two uprights 1 to be connected together are arranged each with one corner opposed to the other. Brackets 3 are inserted in one pair of slots 2 at a suitable elevation and brackets 3 are inserted in a pair of slots 2 of the other uprights at a corresponding elevation. The brackets 3 project at right angles from the sides on which they are situated and are therefore at right angles to each other. The ends of the connecting member 1 are engaged with the uprights and dropped on to the brackets 3 so that they are supported thereby with their slots engaged by the brackets 3. The engagement of the V-ends of the connecting member 8 prevents lateral movement of the said member and the engagement of the brackets 3 and slots in the connecting member 8 prevents separation of the uprights 1 and connecting member 8. The uprights 1 and connecting members 8 are therefore held against relative movement in all directions except movement of the connecting member 8 in an upward direction, which is resisted by the weight of the cross-member 8 and anything supported thereby, such as planks 9.

To lock the connecting member 8 positively against upward movement, a pair of holes 10 is provided in the uprights 1 above each pair of slots 2, the holes 8 being in the same sides as the slots 2. Locking members 11 of similar shape to a staple but of springy material are provided and the bent ends 12 of one of these are forced into the pair of holes 10 immediately above the upper sides of the connecting member 8 at each end thereof. By their spring action the locking members 11 are yieldingly held against accidental separation from the uprights 1. They form abutments which by acting on the upper part of the connecting member positively prevent such upward movement of the connecting member 8 as would result in disengagement of the slots in the connecting member 8 and the brackets 3 until the ends 12 of the locking members 11 are intentionally forced out of the holes 10 in a non-vertical direction against the spring action of the locking members.

Where an upright is to serve as a corner upright of a scaffolding it may be as hereinbefore described, or it may be made oblong so that one of its wide sides accommodate half of the V-ends of two connecting members situated at right angles to each other and its two narrow sides each accommodate one of the remaining halves of the said ends. As shown in Figures 1 and 2 square uprights as hereinbefore described may be used where a double scaffolding with two rows of uprights is required and the uprights require to be connected by connecting members which do not need to be all at the same elevation and some of which connect together the individual members of each row together, whilst others connect members of the one row to members of the other row.

Where a double scaffolding with two rows of uprights is required and the uprights require to be connected together by members which connect the one row to the other and by members at the same elevation which connect the individual members of each row together, I may provide, as shown in Figures 6 and 7, square uprights 13 of double cross-sectional size and having in all four sides a series of slots and holes situated at the same elevation, so that the connecting members can be connected by brackets engaged in the slots and locked by locking members engaged in the holes, to extend at the same elevation from one, two, three or four sides of each upright. In Figures 6 and 7, connecting members extending from three sides of each upright are shown. The form of slots, brackets, holes and locking members is identical with that described with reference to Figures 1 to 4.

I claim:

1. A scaffolding comprising in combination uprights of square tubular cross-section having in all their sides apertures distributed along their lengths, the uprights being disposed with two adjacent sides of one upright opposite two adjacent sides of another upright, separate brackets hooked into horizontally registering apertures in the said sides and projecting therefrom, separate connecting members of square tubular cross-section and having slots engaging the said brackets from above and loosely supported by the said brackets, and separate spring clips engaging others of the said apertures and disposed above the said connecting members and forming above the said connecting members obstructions which prevent accidental lifting of the connecting members out of engagement with the brackets.

2. A scaffolding comprising in combination, uprights of square tubular cross-section having slots and disposed with a corner of one upright pointing towards a corner of another upright, separate connecting members of square tubular cross-section which is of the same size as that of the uprights, each connecting member having V-notched ends for engaging and accommodating two sides of an upright and also having oblique slots, two separate brackets hooked loosely into two adjacent slots in each of two adjacent uprights and projecting therefrom at an angle to each other and engaging the oblique slots in each end of each connecting member and thereby connecting the said ends to the adjacent uprights and supporting the connecting member, the connecting member being held against lateral movement by engagement of the notched ends with the uprights and against axial movement by the obliqueness of the slots and the angular position of the brackets, and separate spring clips connected to the uprights by detachable engagement with the apertures therein and forming on the uprights obstructions above the connecting members for preventing accidental lifting of the connecting members out of engagement with the brackets and uprights.

3. A scaffolding comprising, in combination, square tubular uprights having apertures and disposed with their flat sides oblique to the side of the scaffolding, separate hook-on brackets provided on two adjacent sides of each upright at a right angle to each other and each comprising a substantially triangular part outside the upright and an integral part which extends through the aperture in the upright and is of nearly the same length as the aperture and has at the top an upwardly projecting lug situated inside the upright and extending upwardly beyond the upper end of the said aperture, drop-on connecting members having oblique slots engaging by downward engagement the brackets which project from the said two sides of the uprights, the connecting members being held by the brackets against axial and downward movement and by the uprights and brackets against lateral movement, and staple-like spring clips detachably engaging some of the said apertures for forming obstructions above the connecting members for positively preventing lifting of the connecting members away from the brackets.

4. A scaffolding comprising in combination square tubular uprights having slots in every side and cylindrical holes in the said sides above and associated with the said slots and being arranged with the corners of some of the uprights pointing towards the corners of others of the said uprights, separate square tubular cross-connecting members extending from one upright to another and arranged with the corners of some of the said members pointing towards the corners of others of the said members, V-cuts at the ends of the said cross-connecting members engaging adjacent sides of the uprights for preventing relative lateral movement of the said members and uprights, slots in the said cross-connecting members oblique to the axes of the said members, separate brackets for engagement with the slots in the uprights by a vertical circular movement and comprising parts which extend below the slot externally of uprights and parts which extend above the slots internally of the uprights, the said brackets being engaged separately with the slots

in the said members and arranged in pairs for supporting each of the ends of the vertical members and preventing the said members being pulled in longitudinal direction away from the uprights, and separate staple-like spring clips each sprung on to one of the uprights and engaging two of the cylindrical holes in different sides of the said upright and lying in an oblique position on the two uppermost sides of each of the said members for obstructing upward movement of the said members, the clips being detachable from the said uprights by being sprung off them.

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