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(54) IMPROVEMENTS RELATING TO BUILDING PLATFORM STRUCTURES

(71) We, C. BRYANT & SON LIMITED, a British Company, of Cranmore House, Cranmore Boulevard, Shirley, Solihull, West Midlands, B90 4SD, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to building platform structures required for providing a temporary working platform for use by workmen carrying out elevated external work upon buildings, as for example during building construction operations.

At present, such platforms are usually provided and supported by conventional scaffolding erected against a side or sides of the building involved, but this method of providing building platforms is often rather inconvenient especially insofar as it is relatively complicated and time consuming. Moreover, especially during building construction operations, the presence of conventional scaffolding built up from ground level when provided for certain tasks, such as roof tiling for example, can often form an obstruction which interferes with or delays the carrying out of other necessary external work.

The present invention seeks to overcome or reduce these disadvantages by providing improved means for constructing and supporting building platform structures without the need for conventional scaffolding, and it is based on a concept of assembling a building platform upon brackets which are hung in position temporarily upon the building concerned.

It will be understood that the term "building" is used herein to denote not only completed buildings but also structures of partially completed buildings under construction.

More specifically, the invention provides a kit of parts for constructing an elevated building platform structure against a vertical side or face of a building provided by an exterior wall structure thereof, said kit comprising a pair of brackets, each having a platform support arm, and a pair of separate complementary hanger fittings, one for each bracket, each comprising a spigot pin carried by a flange portion of a body part which, in use, is firmly secured to the exterior wall structure of the building concerned so that said flange portion extends horizontally and said spigot pin upstands vertically therefrom for detachably fitting into a tubular socket element of the respective bracket, whereby, in use, each said bracket can be hung from its complementary hanger fitting, supported on the flange portion of the latter, so as to lie in located depending relationship adjacent the side or face of the building with a lower portion of the bracket bearing against said side or face and with said platform support arm extending horizontally outwards away from said side or face, the arrangement being such that a temporary working platform can be constructed by hanging both brackets at the same level in appropriate lateral spaced relationship against the side or face of the building and by then assembling a platform floor structure, composed for example of wooden battens or planks, to rest upon and span across the projecting platform support arms of said brackets.

Conveniently, the brackets are fabricated from lengths of mild steel tubing and bars or strips welded together.

In preferred embodiments, the platform support arm of each bracket is of cantilever form, braced by a strut member beneath, adapted at its outer end to carry or to be fitted with, when in use, an upstanding post or baluster to support a handrail and/or guard rail and, if required, protective paneling.

The brackets may be differently designed in structural detail according to whether the hanger fittings are to be secured to the top of a wall structure of a building, in order for example to provide a high working platform for carrying out roof tiling operations on a ridge roof rising from said wall struc-

ture, or to the face of a wall structure, such as a gable wall face for instance, and examples of two such different forms of design are illustrated in the accompanying drawings.

In said drawings,

Figure 1 is a diagram indicating a position of fixing a temporary building platform structure, according to a first embodiment of the invention, on a front wall structure of a ridge roofed house during construction operations;

Figure 2 is a part sectional elevational view, on a larger scale, illustrating in more detail the assembly of the building platform structure shown in Figure 1, a main bracket of the structure being shown in a slightly raised position as immediately before fitting it into a final hanging position upon a top hanger fitting or as immediately after commencing dismantling;

Figure 3 is a top plan view of the main bracket of the platform structure of Figure 2;

Figure 4 is a front elevational view of the hanger fitting shown in Figure 2;

Figure 5 is a side elevational view showing a modified form of main bracket fitted, or being fitted, in alternative positions upon hanger fittings to provide temporary building platform structures on the face of the gable wall face of the building of Figure 1, in accordance with a second embodiment of the invention; and

Figure 6 is a top plan view of one of the main brackets shown in Figure 5.

The building platform structures in the drawings are shown as being used upon buildings, in this example a ridge roofed house, being constructed with load bearing walls composed of timber framed panels, each indicated by reference 10, which are subsequently provided with an appropriate cladding or facing finish, this being one form of building construction for which use of the present invention is especially suitable.

The house has a conventional roof structure comprising spaced apart roof trusses 12 resting upon longitudinal tie bars 14 which extend at roof level along the top edges of the panels 10 making up the front and rear walls, the wall 15 shown in Figure 2 being designated a front wall. A similar tie bar 16 extends along the top edges of the panels 10 making up the gable wall 17 shown in Figures 1 and 5 and supports the panels 10 above which form the gable end 18.

These longitudinal tie bars, 14 and 16, are fastened, as by nailing, to a top horizontal frame timber, indicated at 20 in Figures 2 and 5, of the underlying wall panels 10.

In the first embodiment, the temporary building platform structures, indicated

generally by the reference 22, are built-up using a pair of identical main brackets 23, of which one is shown in detail in Figures 2 and 3. These main brackets 23 are each hung, at the same level in spaced-apart relationship, upon an associated hanger fitting 25 which is seated upon the respective longitudinal tie bar 14 and which is firmly secured to the top horizontal frame timber 20 of the wall panel 10 below, within the space between two adjacent roof trusses 12.

In this embodiment, each hanger fitting 25 comprises, as shown, a short length of L-section angle bar 26 constituting a body part associated with a separate back plate component 27 which fixes to a vertically-extending flange 28 of the angle bar 26 by bolts 29, whilst the other flange 30 of the angle bar 26, extending horizontally, carries an upstanding spigot pin 32 rigidly welded thereto. This enables each hanger fitting 25 to be secured by fixing the back plate 27 directly to the flange 28 so as to depend therefrom, and fasteners are passed through holes 33 in the depending portion of the back plate directly into the adjacent top horizontal frame timber 20.

Each bracket 23 is fabricated from lengths of mild steel tubing, some with flattened ends, welded together and comprises a main post upright 35 carrying a laterally projecting platform support arm 36 of cantilever form braced by an obliquely-extending strut 37 below. A short upstanding length of tube 38 is welded in position at the outer end of the arm 36 for assembling a handrail or guard structure as hereinafter described.

At the top, the post upright 35 is rigidly connected by a pair of cheek plates 40, upwardly inclined at an angle commensurate with the angle of elevation of the roof, to a short depending length of tube forming a socket 41, offset from the post upright 35, which is adapted to fit closely over the spigot pin 32 of the associated hanger fitting. The top of the socket tube 41 is shown as being bevelled so as to lie substantially flush with upper edges of the inclined cheek plates 40.

At the bottom end, the post upright 35 has welded thereto a transversely-extending length of bar 43, which is shown as being of L-shape angle section but which may equally well be of plain strip form, in order to provide an elongate pressure plate for bearing against the side or face of the building.

As is clearly shown in Figure 2, the bracket 23 is fitted in position by engaging the socket tube 41 with the spigot pin 32 of the hanger so that the bracket then hangs with the post upright lying adjacent the front face of the respective wall panel 10 (spacers 45 may be placed between) and the

pressure plate 43 bears against said face to balance load applied to the platform support arm 36 which then extends horizontally outwards at right-angles to the panel 10.

5 After hanging the two brackets 23 in place, the platform is then completed by assembling wooden battens 50 to rest upon and span across the projecting platform support arms 36, and an upstanding post or baluster 51 is fitted, by means of a double-ended spigot connector 52, to the short socket tube 38 at the outer end of each arm 36 in order to carry a handrail 54 and a guard batten 55.

15 The working platform is then complete and can conveniently be used for carrying out tiling operations on the roof during construction of the building, leaving the remainder of the wall underneath unobstructed and accessible for other operations to be carried out at the same time as the tiling.

20 After use, the platform structure can readily be removed and dismantled, the brackets 23 being disengaged from their associated hanger fittings by first lifting to disengage the spigot and socket connecting means and then moving outwards in a downwardly inclined direction beneath the tiles which will then be in place, this operation of removal being facilitated by the inclined configuration at the top end of the post uprights 35 as described and illustrated.

35 The modified form of bracket 23' shown in Figures 5 and 6 is used, again with a complementary hanger fitting 25', where a face fixing of the hanger fitting is necessary, as on the gable wall and gable end referred to.

40 Like the brackets 23, the brackets 23' are again fabricated from lengths of mild steel tubing and bar or strip welded together and comprise a short post upright 35' carrying a laterally projecting platform support arm 36' at the top which is braced by an obliquely extending strut 37' joined to the lower end of the upright 35'.

50 In this embodiment, a short socket tube 41' for engaging the spigot pin 32' of the hanger fitting 25' is carried by a short extension of the arm 36' at the inner end which projects beyond the upright 35', and the outer end of the arm 36' again carries a short upstanding socket tube 38 for assembling a handrail support post 51 as before. But, instead of the lower end portion of the upright 35' carrying a pressure plate as in the first embodiment, a transversely extending pressure plate 43, for bearing against the face of the adjacent wall panel to take the side thrust load and to prevent rotating is carried by the lower end of the strut 37' which extends below the upright 36'.

The hanger fittings 25' in this arrangement are fixed to the panels 10 of the wall structure by a component L-section angle bar 26' being applied to the front face thereof so that the limb carrying the upstanding spigot pin 32 projects outwardly, and a separate back plate 27' is applied to the rear face, long clamping bolts being passed through the panel 10 (preferably through a frame timber thereof) between the back plate 27' and angle bar 26'.

Each bracket 23' is then hung and assembly of the platform structure is completed as with the first embodiment.

80 In Figure 5, the wall panel 10 below the tie bar 16 represents the top of the gable wall 17 and that above the tie bar 16 represents part of the gable end 18. The lower bracket 23' shown, which is just being hung in position on its associated hanger fitting 25' would provide a platform at the same level as that shown in Figure 2, whilst the upper bracket 23' shown, illustrated with a complete platform assembled thereon, would give a working platform at a higher level. A still higher level could be attained by fixing hanger fittings to the actual gable end 18, and these different levels are indicated in Figure 1 by the broken horizontal lines marked X, Y and Z.

95 After use and dismantling of the platform structures, the hanger fittings may either be removed, or they may be left permanently in place.

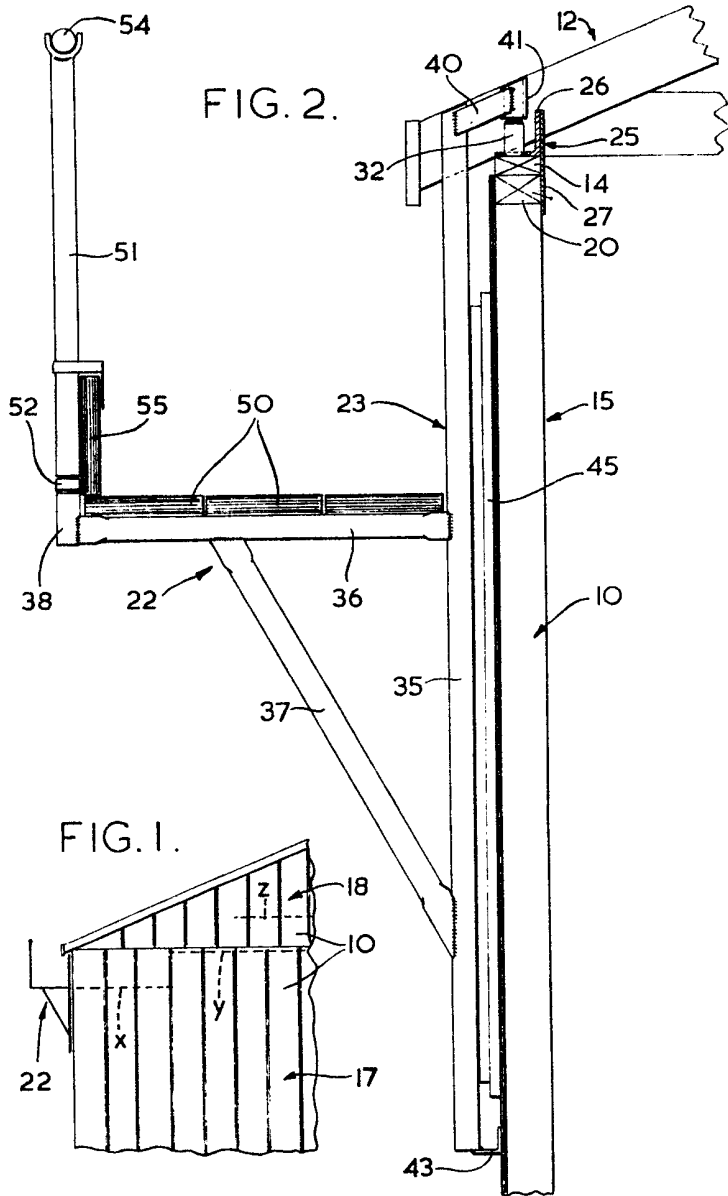
100 It will be understood that these embodiments hereinabove described have been presented by way of example only, and that many other detail modifications may be made in the structures disclosed within the scope of the invention as defined in the appended claims.

WHAT WE CLAIM IS:—

1. A kit of parts for constructing an elevated building platform structure against a vertical side or face of a building provided by an exterior wall structure thereof, said kit comprising a pair of brackets, each having a platform support arm, and a pair of brackets, each having a platform support arm, and a pair of separate complementary hanger fittings, one for each bracket, each comprising a spigot pin carried by a flange portion of a body part which, in use, is firmly secured to the exterior wall structure of the building concerned so that said flange portion extends horizontally and said spigot pin upstands vertically therefrom for detachably fitting into a tubular socket element of the respective bracket, whereby, in use, each said bracket can be hung from its complementary hanger fitting, supported on the flange portion of the latter, so as to lie in located depending relationship adjacent the side or face of the building with

- a lower portion of the bracket bearing against said side or face and with said platform support arm extending horizontally outwards away from said side or face, the arrangement being such that a temporary working platform can be constructed by hanging both brackets at the same level in appropriate lateral spaced relationship against the side or face of the building and by then assembling a platform floor structure, composed for example of wooden battens or planks, to rest upon and span across the projecting platform support arms of said brackets.
2. A kit as claimed in Claim 1, wherein the platform support arm of each bracket is of cantilever form, braced by a strut member beneath, having connector means at its outer end for fitting, when in use, an upstanding post or baluster to support a handrail and/or guard rail and, if required, protective panelling.
3. A kit as claimed in Claim 2, wherein said connector means comprises a socket member for a spigot and socket connection to the upstanding post or baluster.
4. A kit as claimed in any of the preceding claims, wherein the lower portion of each bracket is provided with a surface arranged to bear, when in use, against the side or face of the building through at least two laterally spaced contact points thereby to prevent or restrain turning or rotation about a vertical axis when the bracket is hung in position on said building.
5. A kit as claimed in any of the preceding claims, wherein the tubular socket element of each bracket for receiving the upstanding spigot pin of its complementary hanger fitting is carried by the upper portion of the bracket in a position offset with respect to a main upright of the bracket.
6. A kit as claimed in Claim 5, wherein the socket element carried by the upper portion of each bracket is rigidly connected to the upper end of said main upright which, in use, extends above the level of the projecting platform support arm so as to enable the bracket to be hung from a said hanger fitting fixed at the top of the exterior wall structure of said building.
7. A kit as claimed in Claim 5, wherein the socket element carried by the upper portion of each bracket is rigidly connected to the inner end of the projecting platform support arm for hanging from a said hanger fitting fixed to the face of the exterior wall structure of said building adjacent the level of said platform support arm.
8. A kit of parts for constructing an elevated building platform structure against a vertical side or face of a building, said kit comprising a pair of brackets and associated complementary hanger fittings constructed as herein described and illustrated with reference to Figures 1 to 4 of the accompanying drawings.
9. A kit of parts for constructing an elevated building platform structure against a vertical side or face of a building, said kit comprising a pair of brackets and associated complementary hanger fittings constructed as herein described and illustrated with reference to Figures 5 and 6 of the accompanying drawings.
10. An elevated building platform structure constructed from a kit of parts as claimed in any of the preceding claims.

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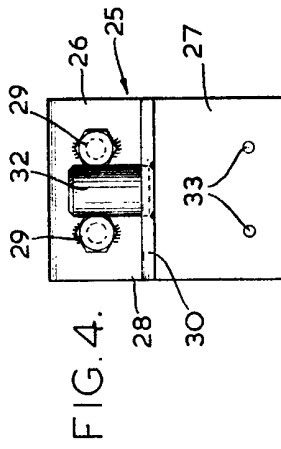
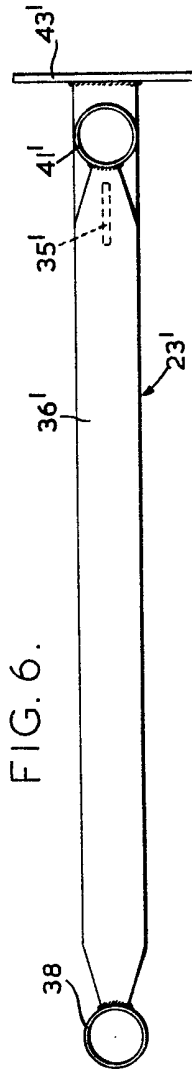
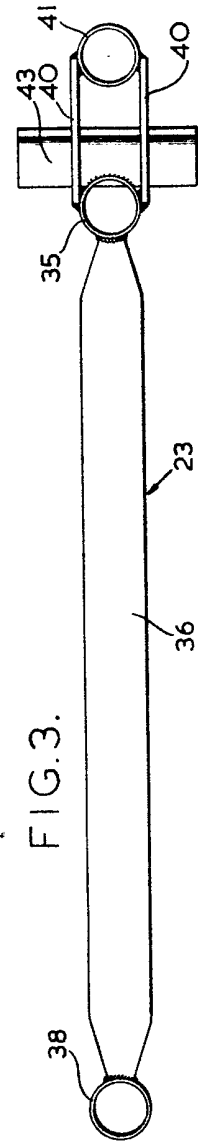


FIG. 5.

