

April 23, 1968

R. C. CALLETTI ET AL

3,379,281

METHOD AND EQUIPMENT FOR BUILDING CONSTRUCTION

Filed March 8, 1966

2 Sheets-Sheet 1

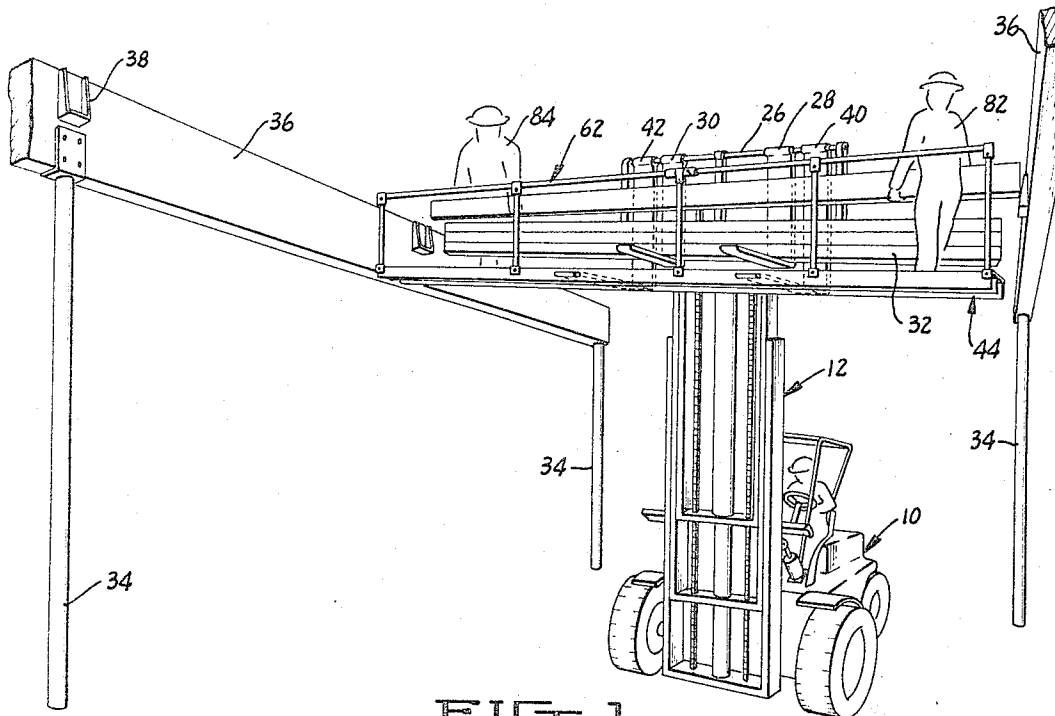


FIG. 1.

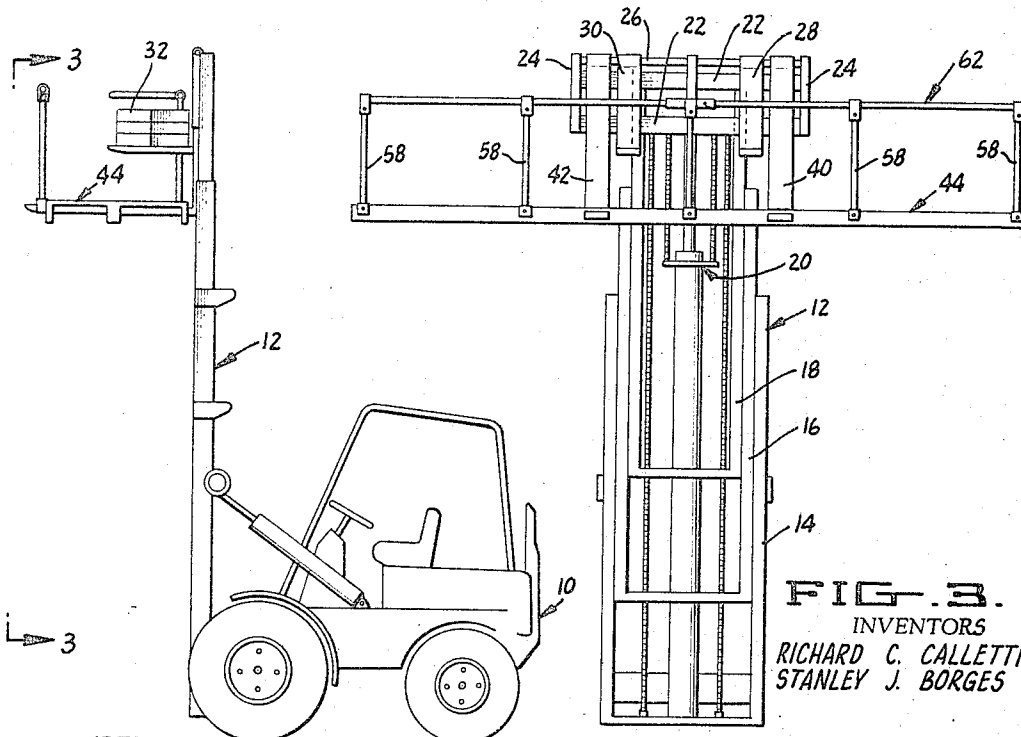


FIG. 2.

FIG. 3.
INVENTORS
RICHARD C. CALLETTI
STANLEY J. BORGES

ATTORNEYS

April 23, 1968

R. C. CALLETTI ET AL

3,379,281

METHOD AND EQUIPMENT FOR BUILDING CONSTRUCTION

Filed March 8, 1966

2 Sheets-Sheet 2

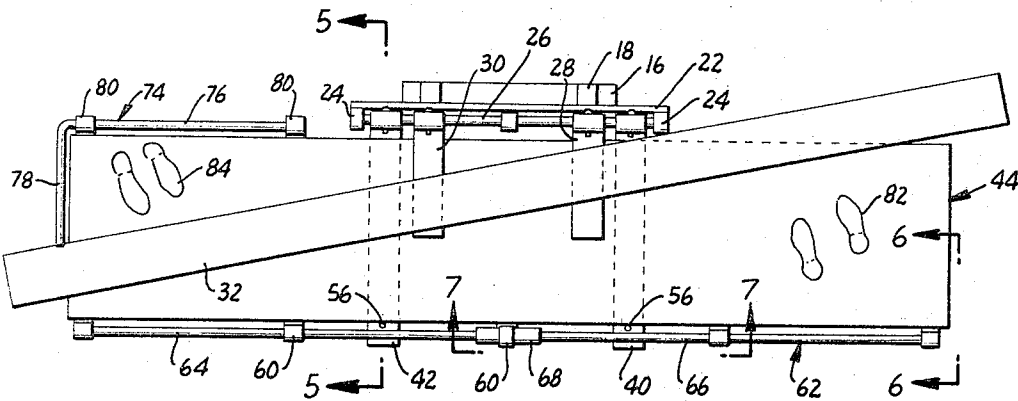


FIG. 4.

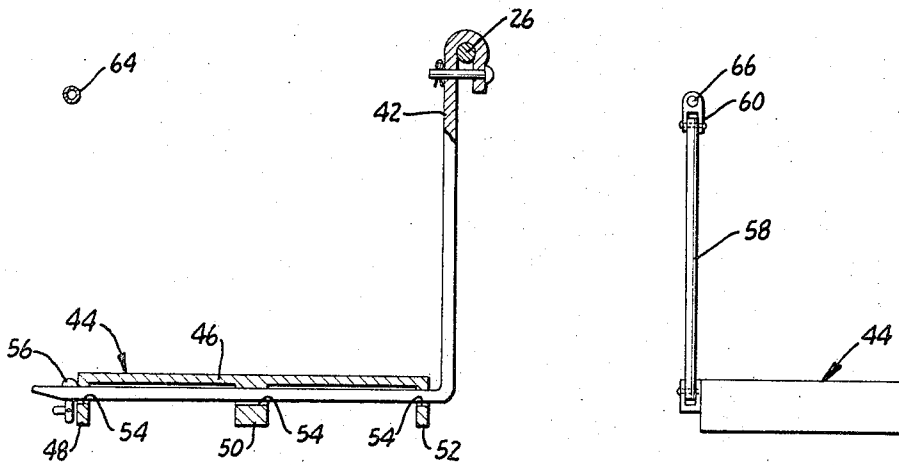


FIG. 5.

FIG. 6.

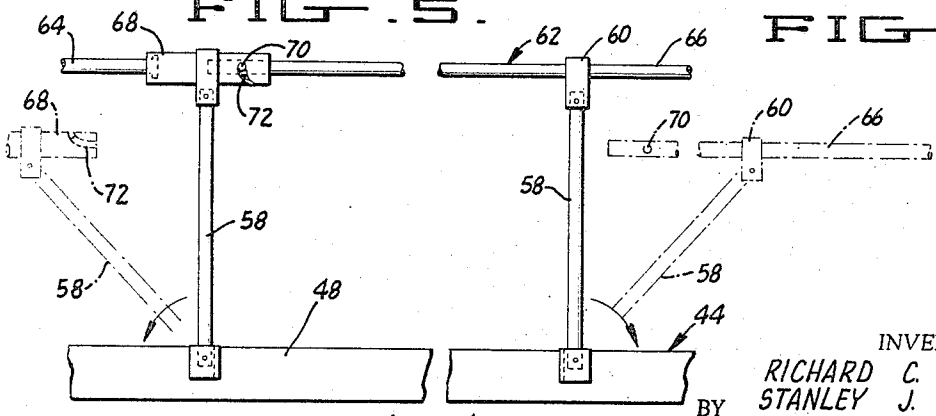


FIG. 7.

INVENTORS
RICHARD C. CALLETTI
STANLEY J. BORGES

BY

ATTORNEYS

1

3,379,281

METHOD AND EQUIPMENT FOR BUILDING CONSTRUCTION

Richard C. Calletti, Santa Rosa, and Stanley J. Borges, San Rafael, Calif., assignors to Standard Structures, Inc., San Rafael, Calif., a corporation of California
Filed Mar. 8, 1966, Ser. No. 532,722
4 Claims. (Cl. 182-113)

This invention relates to building construction and more particularly to a safe method of and safety equipment for building construction.

Exemplary of the type of building construction for which the subject invention is adapted is that which involves the use of heavy timber framing comprising structural glued laminated lumber.

A basic module of such construction comprises a pair of horizontal and parallel lumber beams mounted atop and supported by vertically disposed columns which may or may not be formed of wood. After such beams have been emplaced they are interconnected by a pair or more of purlins disposed transversely of the beams, the purlins being, for example, toe-nailed to the beams and end-received in metal stirrups which are nailed or otherwise positioned along the inside faces of the beams.

The emplacement of such a purlin is presently accomplished in the following manner. A pair of workers, one straddling each beam, fasten a pair of opposed metal stirrups in place. A high-lift fork truck carrying a supply of purlins in flat-stacked condition and in angular relation to the forks lifts the purlins so that the ends of the top one are within reach of the workers and so that the top one is disposed above the beams. The workers then tip the upper purlin through an angle of 90° to bring it to an upright position. This purlin is then swung by the two workers around an imaginary vertical pivot axis, which passes through the remaining stacked purlins, to bring it to a position normal to the two beams. The forks are then lowered to move the oriented purlin downwardly so that its ends are received and supported within the pair of opposed metal stirrups. The workers then toe-nail the purlin in place and work their ways along the two beams to the next position for purlin emplacement.

Since the beams may be as much as sixty-five feet above ground level, and since it has not been found practical to employ safety net riggings or safety harnesses for the workers, it will be appreciated that the workers' job performance, as above-described, is very hazardous.

The essential object of the present invention is to provide a method and means enabling such building construction to be accomplished, without the hazard of a worker falling from a precarious position, at a significantly greater rate of production and with a minimal increase in cost of the equipment required.

The invention is founded upon the concept of removing the workers from the beams, placing the workers adjacent the beams in position to do the work above-described, and rendering the workers mobile in company with the high-lift fork truck.

The embodiment of this concept which constitutes the subject invention may be defined broadly as follows: the combination, with the conventional high-lift fork truck, of a second pair of forks, the latter forks being disposed below the level of the normal pair of load-lifting forks, a platform removably supported by the second pair of forks at a level below the normal pair of forks, the platform having a length only slightly less than the distance between two adjacent beams, with the outer end portions of the platform constituting work stations for the workers, and raisable and lowerable guard rail means for the platform adapted, when raised, to protect the workers against falls from their working stations and, when lowered, to permit

2

the ready transfer of a new stack of purlins onto the normal forks.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawings forming part of this specification, and in which:

FIG. 1 is a view in perspective illustrating the equipment embodying the invention and the manner in which it is employed;

FIG. 2 is a view in side elevation of the equipment embodying the invention;

FIG. 3 is a detail view taken along lines 3-3 of FIG. 2;

FIG. 4 is a top plan detail view of the equipment of FIG. 1;

FIG. 5 is an enlarged view in section taken along lines 5-5 of FIG. 4;

FIG. 6 is an enlarged detail view taken along lines 6-6 of FIG. 4; and

FIG. 7 is an enlarged detail view taken along lines 7-7 of FIG. 4 and illustrating in dotted outline how the forward guard rail of the platform may be lowered.

Referring to the drawings, the truck 10 is provided with a high-lift boom 12 comprised of a plurality of telescopically arranged frame sections 14, 16, and 18 and power actuator means indicated generally at 20. The terminal frame section 18 comprises vertically spaced horizontal members 22 having vertically disposed end members 24. The end members 24 support a shaft 26 from which there is pivotally hung a pair of forks 28 and 30. Forks 28 and 30 are conventionally employed in this form of high-lift apparatus. Supported on forks 28 and 30 is a plurality of flat-stacked purlins 32 angularly disposed (see FIG. 4) to the forks.

Supported on columns 34 is a pair of parallel spaced beams 36. Pairs of oppositely disposed metal stirrups 38 are attached to the beams, each pair of stirrups being adapted to receive and support the ends of a purlin 32.

Also pivotally hung from the shaft 26 (see FIG. 5) in a manner similar to the hanging therefrom of the normal forks 28 and 30 is a pair of forks 40 and 42. The latter forks are, preferably, disposed outwardly of the former forks. The feet of forks 40 and 42 are disposed at a level beneath that of the feet of forks 28 and 30.

Removably supported by forks 40 and 42 is a platform 44 comprised of a floor portion 46 and longitudinal reinforcement and support members 48, 50, and 52, the latter being provided with sets of aligned apertures 54 through which the feet of forks 40 and 42 extend. Removable pins 56 prevent accidental disengagement of the platform 44 from the forks 40 and 42.

Pivotally attached to platform member 48 is a plurality of vertically disposed guard rail support members 58 (see FIG. 6), the upper ends of which have pivotally attached thereto the flanged carriers 60 of a horizontally disposed guard rail, the latter being indicated generally at 62 and being formed of two sections 64 and 66.

Guard rail section 64 is secured to sleeve connector 68, the latter being rotatably carried by one of the flanged carriers 60 and being rotatable relative to rail section 64. Guard rail section 66 is provided with a radially extending pin 70. Sleeve connector 68 is provided with an arcuate slot 72 within which pin 70 may be received and secured by rotative movement of the sleeve connector 68.

When the pin is so secured within the slot, as shown in FIG. 7 in solid line outline, the guard rail is in the raised or operative position. When connector 68 is rotated to release pin 70 from slot 72, the guard rail sections 64 and 66 may be separated and swung to a lowered position, as indicated in dotted outline in FIG. 7, beneath the level of floor portion 46 of platform 44. In the latter position

the guard rail 62 offers no hindrance to the placement of another stack of purlins or other load items upon the load bearing forks 28 and 30.

Platform 44 is further provided (see FIG. 4) with an auxiliary guard rail indicated generally at 74 and comprising a portion 76 disposed at the back of the platform 44 and a portion 78 disposed at one side of the platform, support means for the guard rail 74 comprising vertical post members terminating in sleeve elements 80. The post members for the sleeve elements 80 may be fixedly attached to the platform reinforcement and support member 52, and the guard rail 74 may be rendered fixed and removable by the expedient of making the portion 76 slidably disposed within sleeve elements 80 and providing a removable locking pin, not shown, extending through aligned apertures formed in rail portion 76 and in one of the sleeve elements 80. Upon removal of such a pin, guard rail 74 may either be removed or its portion 76 may be rotated about its axis to swing rail portion 78 to a downwardly extending out of the way vertical position. The opposite end of the platform may, if desired, be provided with a guard rail comprising at least a section paralleling the end edge of the platform.

As indicated in FIGS. 1 and 4, the workers 82 and 84 would be normally positioned as shown to accomplish the positional placement of the ends of a purlin in supported relation within a pair of metal stirrups 38. Following such placement the workers permanently secure the purlin to the beams, as by nailing. The high-lift truck is then driven by its operator parallel to and between the beams to the next position for purlin placement.

What is claimed is:

1. In combination with a high-lift truck having a pair of forwardly extending load-lifting forks: a second pair of forwardly extending forks of substantially greater length than said load-lifting forks disposed below the level of said load-lifting forks, an elongated platform mounted on the second pair of forks, said platform being disposed at a level below said load-lifting forks therefor having its long or lengthwise dimension disposed transversely of the second pair of forks, and having its short or width dimension disposed both in subtending relation

and in forwardly extending relation to said load-lifting forks.

2. The invention of claim 1, including means for removably mounting the platform on the second pair of forks, and means for securing the platform in place on said forks and against relative movement between the platform and said forks.

3. In combination with a high-lift truck having a pair of load-lifting forks: a second pair of forks extending below the level of said load-lifting forks, an elongated platform mounted on the second pair of forks, said platform being disposed beneath said load-lifting forks and having its long or lengthwise dimension disposed transversely of the second pair of forks, said second pair of forks extending transversely of the width dimension of said platform, said platform extending forwardly from said truck a substantially greater distance than said load-lifting forks, said substantially greater distance being of a magnitude which is at least the measure of the width of a workers' walkway on said platform, which walkway is adapted to be unimpeded by the load-lifting forks and a load carried thereby, and a guard rail mounted on the platform along the forwardly disposed side thereof.

4. The invention of claim 3, said guard rail being adapted to be disposed in an out of the way position whereby a load may be placed upon the load-lifting forks over the forwardly disposed side of the platform.

References Cited

UNITED STATES PATENTS

2,496,399	2/1950	Lesser	214—750
2,676,066	4/1954	Woborill	182—113
2,820,561	1/1958	Meagher	182—63
2,843,280	7/1958	Stopps	214—750
3,016,973	1/1962	Williamson	182—63
3,187,917	6/1965	Miller	214—113

FOREIGN PATENTS

1,066,366	1/1954	France.
-----------	--------	---------

REINALDO P. MACHADO, *Primary Examiner.*