June 29, 1948. J. WAHL 2,444,122

SCAFFOLD FOR BUILDERS

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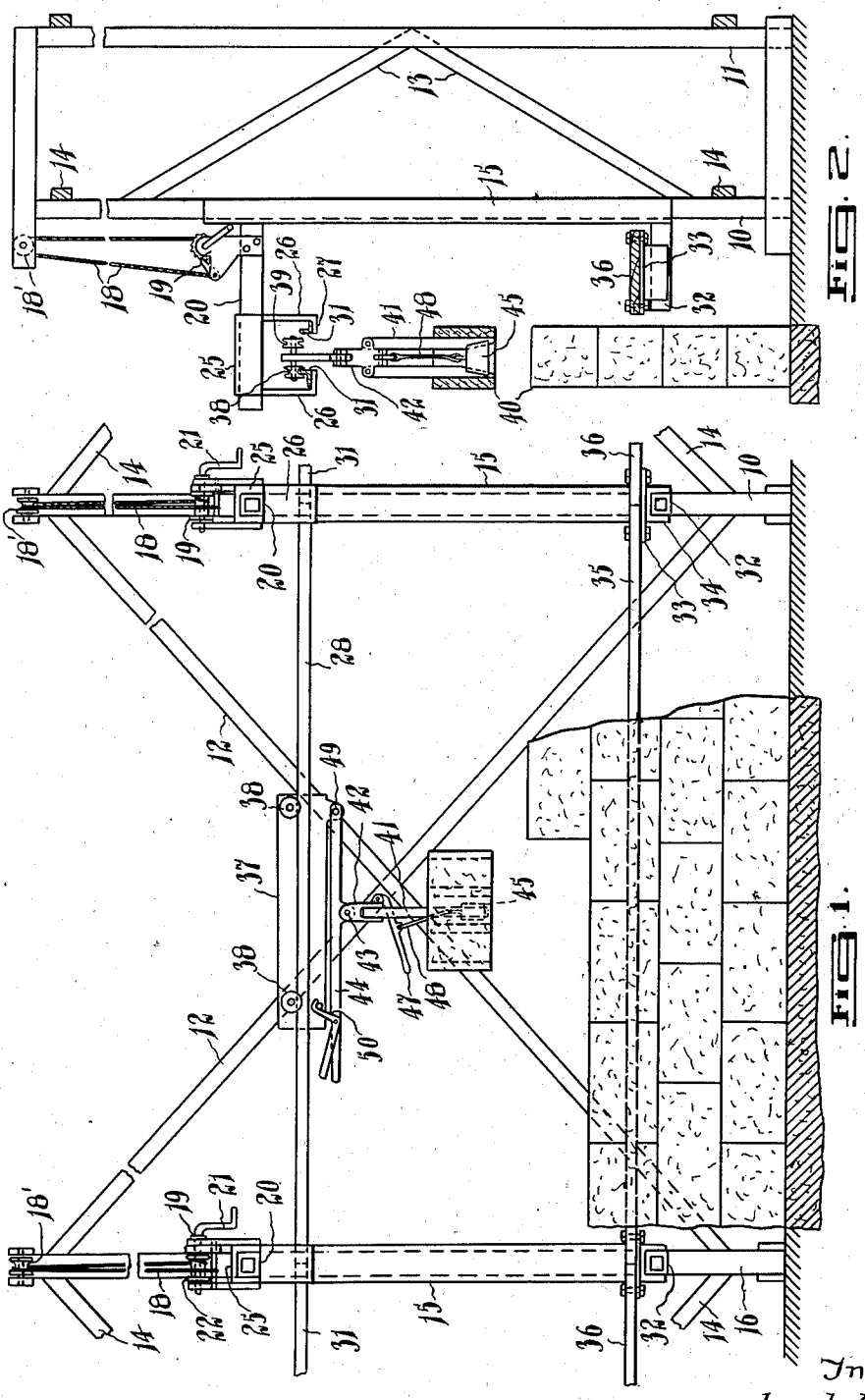


Fig. 2.

Fig. 1.

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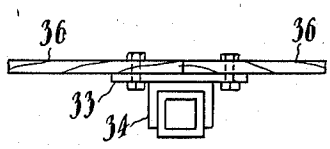


Fig. 5.

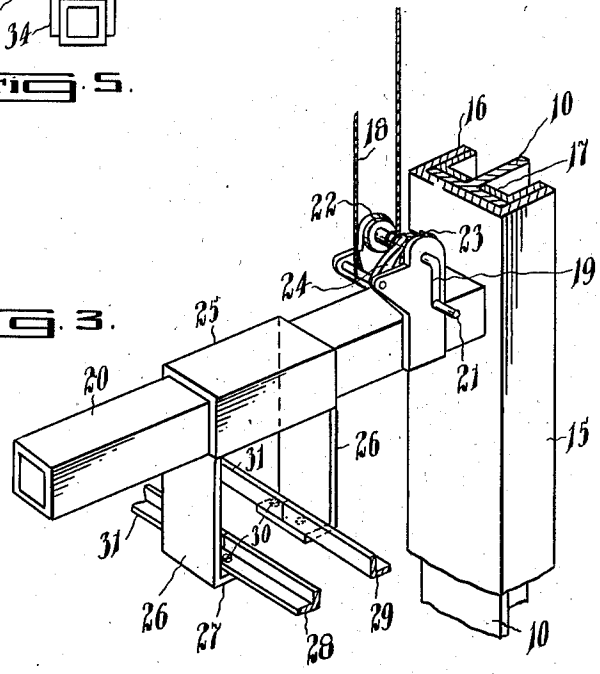


Fig. 3.

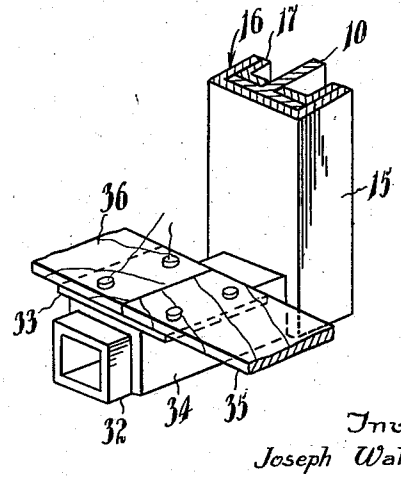


Fig. 4.

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Fig. 8

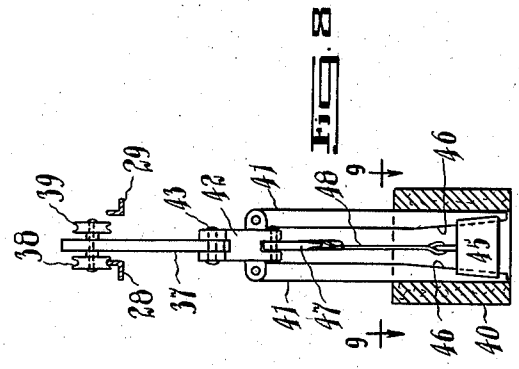


Fig. 9

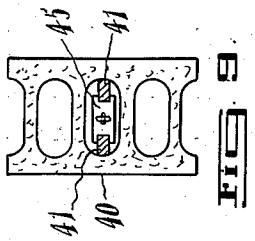


Fig. 7.

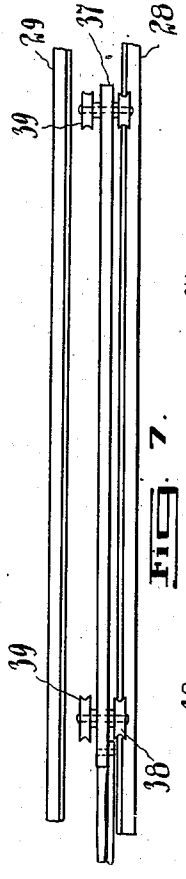
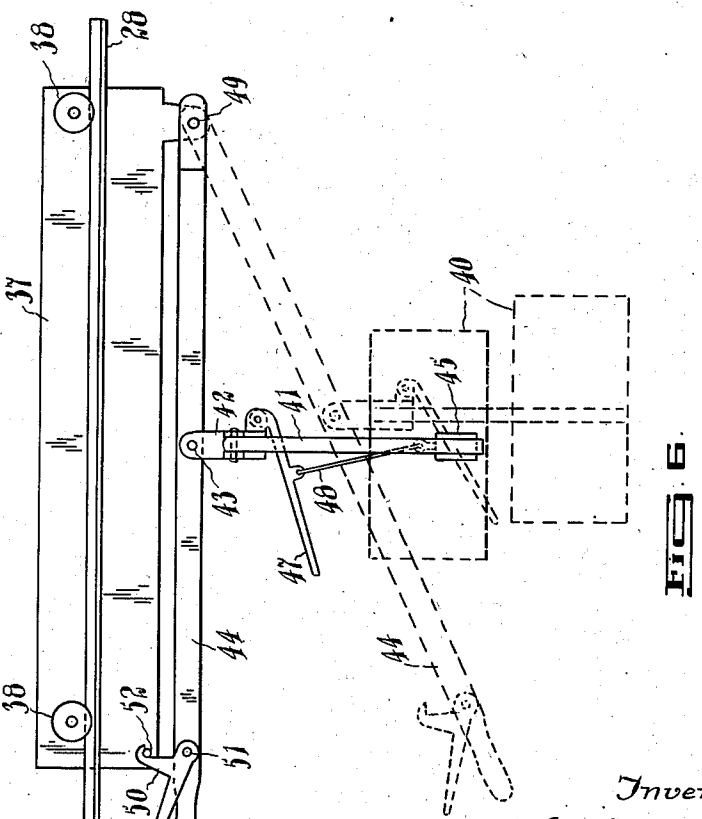


Fig. 6.



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UNITED STATES PATENT OFFICE

2,444,122

SCAFFOLD FOR BUILDERS

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Application July 19, 1946, Serial No. 684,679

4 Claims. (Cl. 304—29)

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My invention comprehends the novel construction and arrangement of an apparatus for laying conventional building blocks, and aims to provide a scaffold structure having a carriage operable on a track for carrying blocks from a source of supply and depositing them in laid position in the erection of a wall or walls of a building.

The invention further comprehends an apparatus of this character in which the carriage is provided with a gripper in the form of depending jaws for entering an aperture in a block in order to grip the block by a spreading action brought about by a device which spreads the jaws into engagement with wall-surfaces of said aperture. The jaws are mounted on the carriage by a device by which they are lowered and raised for picking up a block from a supply station and lowering it into position on a wall in the laying of a course of blocks. This relieves the workman of the arduous task of picking up a block by hand and carrying it to the place where it is required to be placed and then further handling it in the laying operation.

Additionally, the invention includes in its novel features the provision of a scaffold made up of similar sections which are erected at the side of a foundation for a building to extend partly or substantially completely around the same. The scaffold-sections comprise vertical slides at their ends which are raised and lowered by means of winches and provided with platform elements for the workmen so that they may stand at a convenient elevation for applying mortar and performing other work incidental to the laying of blocks. The slides are also provided with overhead rails for the carriage, and preferably there is supplied a double rail so that when a block has been delivered the carriage may be transferred from one rail to the other in order that it may be returned for reloading while another block is being delivered by a second carriage. This expedites the laying of blocks.

The invention will be better understood by reference to the accompanying drawings which illustrate a selected embodiment of the block-laying apparatus which is described in detail in the ensuing specification and more particularly defined in the subjoined claims.

In the drawings, Fig. 1 is a front elevation of a fragment of the scaffold apparatus showing a complete section with one carriage, it being understood that other sections are of a similar construction.

Fig. 2 is an end elevation of Fig. 1.

Fig. 3 is a perspective view depicting on an enlarged scale the upper part of a slide which is guided on an end member of the scaffold section and is provided with an arm for support of the rails.

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Fig. 4 is a perspective view depicting on a like scale the lower part of the slide of Fig. 3 and showing it provided with an arm for support of the platform.

Fig. 5 is a front end view of the arm of Fig. 4 showing a splice plate slidably mounted thereon for joining adjacent ends of planks which comprise the platform.

Fig. 6 is a side elevation of the carriage, on an enlarged scale, depicting it on one of the two rails and indicating the gripper in a raised position and also in a lowered position, the lowered position being shown in dash lines.

Fig. 7 is a plan view of Fig. 6.

Fig. 8 is an end view of Fig. 6 and depicts a building block in cross section in full lines.

Fig. 9 is a cross section of the gripper device taken on line 9—9 of Fig. 8.

Referring to the drawings by reference characters, it will be seen that the apparatus comprises a scaffold of the skeletal type commonly used in association with the erection of a building. The scaffold is made up of a plurality of similar sections or units which are erected at the site of the building in proximity to the walls to be built of building blocks. The number of sections or units employed for a given building will of course depend upon the length of the component walls relative to the individual length of said sections or units. The sections or units will rest upon the ground and be of a suitable height, and also adapted to be extended in height by the addition of similar units thereto, all of which is of well-known practice and will be well understood by those skilled in the art.

Each section or unit comprises spaced front uprights 10 and spaced rear uprights 11 joined to compose a unitary assembly by means of cross pieces 12 and struts or braces 13. The sections or units are erected in spaced endwise relation, and adjacent sections or units are joined by similar cross pieces, denoted at 14 in Fig. 1.

The front uprights 10 of each section of the scaffold are fitted with vertical slides 15. Each slide is interfitted with a front upright by an approved connection, denoted at 16 in Figs. 3 and 4, by which it is endwise slidable on ways 17 preferably formed by a T-shaped cross section with which the upright is provided. The slide is suspended by a cable 18 passed around a pulley 18' at the top of the section and secured at

an end to the slide with the other end connected to a winch 19. The winch is preferably mounted on a forwardly extended arm 20 and is turned by the hand crank 21 for winding the cable on the drum element 22 having the usual ratchet 23 and dog 24.

The arm 20 is rigid with the slide and serves to carry a hanger 25 which is loosely engaged so that it can be positionally changed along the length of the arm for the purpose hereinafter explained. Said hanger is supplied with spaced straps 26 having inturned lower ends which form seats 27 for abutting ends of rail-lengths 28 and 29. The rails consist of lengths of angle-iron and the one length 29 is extended from one to the other of the slides on the scaffold section or unit and is secured on the seats 27 of the hangers 25 by bolts or like fastening elements 30. The other rail-length 28 is similarly extended between the slides on the scaffold section and secured on seats of the hangers 25 by fastening elements—see Fig. 3. The seats 27 also serve to support abutting ends of rail-length, denoted by 31 in Figs. 1, 2 and 3, which extend to an adjacent scaffold section so as to provide a continuous trackway alongside of a wall of a building.

The slides 15 of the scaffold section or unit are provided with rigid arms 32 forwardly extended from their lower ends for the support of a platform or cat-walk for the workmen. These arms are somewhat shorter than the arms 20 and are provided with splice plates 33 rigid with saddles 34 loosely seated on the arms 32 and retained by flange portions. The saddles are capable of adjustment longitudinally of their mounting arms 32. A plank 35 is extended between the arms 32 of the scaffold section and bolted to the splice plates 33. These splice plates also serve to support abutting ends of planks, as at 36, which extend to adjacent scaffold sections so as to provide a continuous platform beneath the rails.

From the preceding description it will be manifest that there is provided a sectional scaffold with upper rails and a lower platform, and one which can be readily erected on a job and dismantled when the job is finished. The rails and platform are unitary and can be elevated by the winches on the slides. Workmen standing on the platform operate the winches.

The carriage is denoted as a whole by the numeral 37 and is provided with grooved wheels 38 by which it is suited to travel on one of the rails, and also provided with oppositely located wheels 39 by which it is suited to travel on the other rail. To this end it is disposed between the rails with the wheels at either side so that a workman may readily lift it from one rail to the other. One of the rails is used for delivery of blocks from a pile or stack to the situation of placement in the erection of a wall. The other rail is used for return of the carriage when unloaded. Any number of carriages may be employed and the rails should be spaced apart a distance sufficient to permit a carriage on one rail to pass a carriage on the other rail. Obviously a single rail may be employed if so desired.

The carriage is provided with a gripper for gripping the usual building blocks, indicated at 40. The gripper comprises a pair of jaws 41 pivotally depending from a swivel member 42 having a transverse axis 43 by which it is attached to the intermediate portion of a horizontally-arranged latching lever 44. The jaws 41 are adapted to enter the central opening in a building block and are expanded into gripping engagement with the wall surface thereof by means of a spreading device. The spreading device desirably consists of a wedge 45 having inclined faces which are engaged with inclined inner faces 46 provided on the jaws. The wedge is actuated by a hand lever 47 fulcrumed on the swivel member 42 and connected to the same by means of a link 48. In the arrangement shown, the hand lever 47 is raised to spread the jaws and reversely moved to release them. Other arrangements could be resorted to without departing from the invention.

The latching lever 44 is pivoted to one end of the carriage as indicated at 49 so as to swing downwardly and is latched to the other end of the carriage by a catch 50 pivoted at 51 and engaged with a pin or other keeper 52. The free end of the latching lever has a hand grip 53 and the catch has a grip 54. Accordingly, a workman standing on the platform can readily take hold of the latching lever and release the catch in order to lower the gripper.

In the use of the apparatus the sectional scaffold is set up alongside of the building site with one or more carriages on the rails. At one part or end of the scaffold there is provided a feeding station (not shown) at which a pile or stack of blocks are deposited and at which a workman loads a carriage. For this purpose blocks may be placed on the platform at the feeding station or they may be placed on a lift which can be raised according to the height of the platform. The hangers are so positioned laterally of the scaffold that the carriage, when mounted on the front rail, will suspend a block directly over the wall to be laid. Adjustment of the hangers is effected by shifting them on the arms 20 as previously recounted. The platform for the workmen is disposed inwardly of the carriage and at a height most convenient for the laying of the blocks. In the use of the carriage it is first disposed over a block to be picked up from the source of supply and the lever 44 is unlatched to lower the gripper so that the jaws can be engaged in the block as above described. The block is gripped by spreading the jaws and then the lever is raised and latched for carrying the block to its destination whereupon it is lowered by the latching lever to situate it in the wall structure in bonded disposition without the workman having to lift it into place. All the workman has to do is to mortar each course and plumb the blocks. The slides are elevated by the winches to progressively elevate the rails and platform. The carriage is propelled by hand and when it has been relieved of a block it is transferred from one rail to the other and returned for another block.

The advantages and utility of the invention will be readily apparent and it will be manifest that the apparatus greatly facilitates and expedites the laying of blocks with an attendant saving in labour cost. The rails may have curved sections for turning of the carriage at a corner of the building, or on the other hand a "Gypsy" switch may be used, which is immaterial to the invention.

What I claim is:

1. In apparatus of the kind described, a scaffold structure, an overhead rail supported thereby, a carriage for traversing the rail, and a gripper comprising relatively movable jaws depending from the carriage with distal ends adapted to enter a hole in a block, and a hand-operated

wedge for spreading said free ends of the jaws in order to grip the block.

2. In apparatus of the kind described, a scaffold structure, an overhead rail supported thereby, a carriage for traversing the rail, and a gripper comprising coacting jaws pivotally depending from the carriage and having distal ends for entering a hole in a block, a wedge disposed between said distal ends and having inclined faces engaged with similar faces thereon, and a handlever mechanism for shifting the wedge for spreading said distal ends into gripping engagement with said block.

3. In apparatus of the kind described, a scaffold structure, an overhead rail supported thereby, a carriage for traversing the rail, and a gripper comprising a swivel member on the carriage, a pair of jaws pivotally depending from the swivel member for entering an aperture in a block, said jaws having inwardly disposed inclined faces, a wedge engaged with said faces, a handlever pivoted on said swivel member, and a link operably connecting the wedge to the handlever for spreading the jaws to grip the block.

4. In apparatus of the kind described, a scaffold

structure, a spaced pair of rails supported thereby, a carriage disposed between said rails having a lateral set of wheels for traversing one of the rails and having an opposite lateral set of wheels whereby it may be transferred to the other rail for traversing the same, and a gripper suspended on the carriage by a connection including means by which it may be lowered and raised.

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