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MOVING MEANS FOR BUILDING BLOCKS

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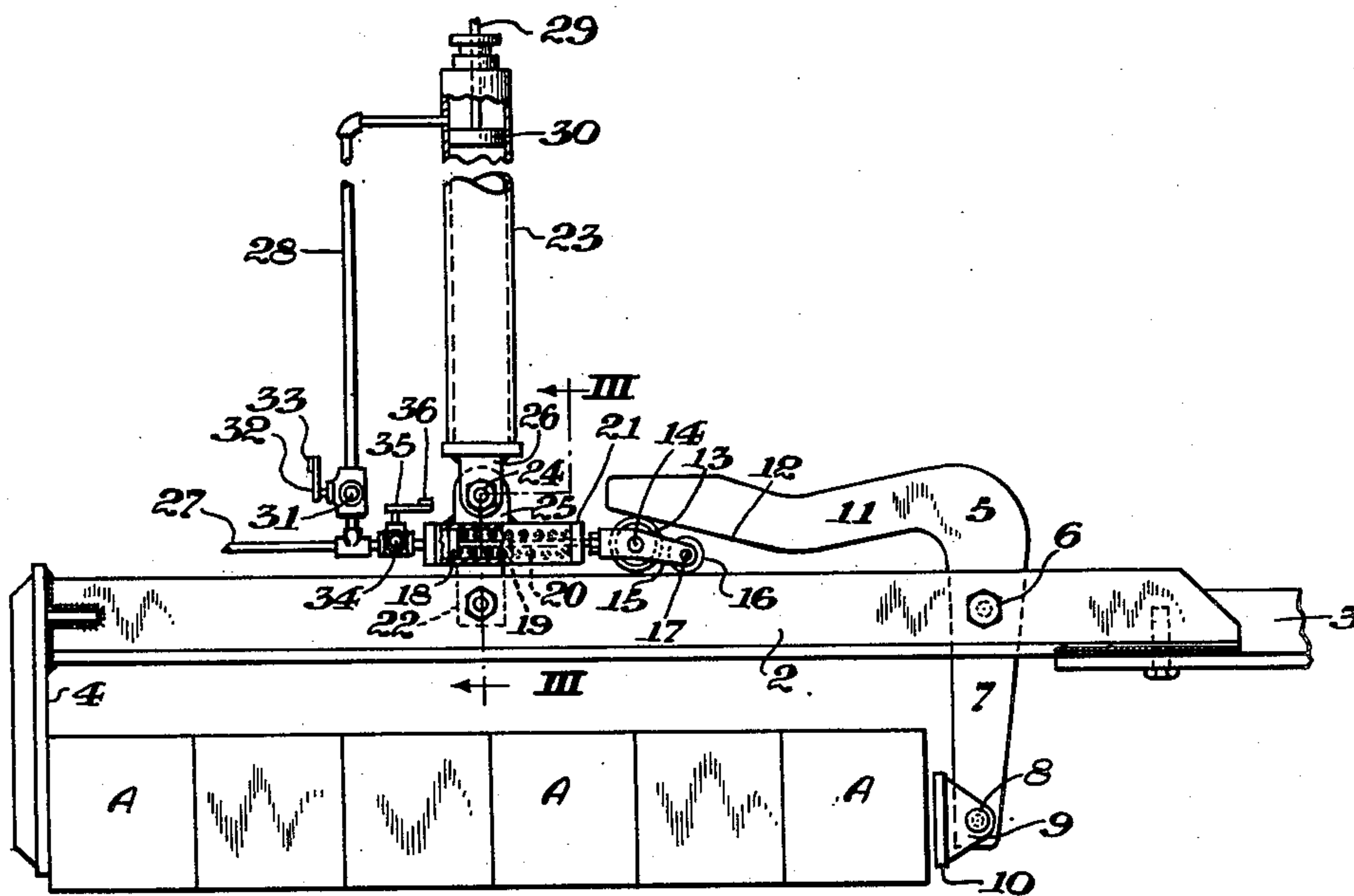


Fig. 1.

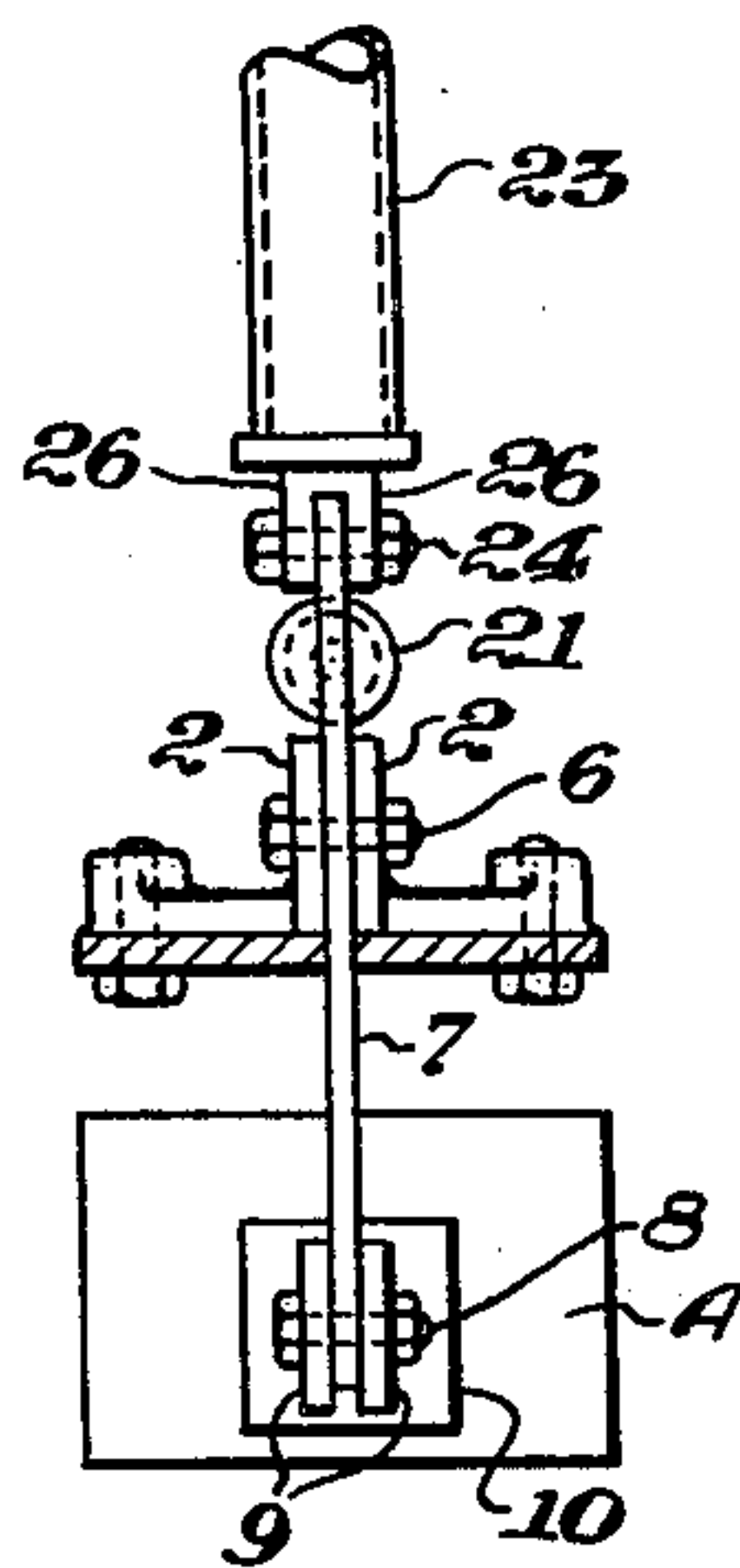


Fig. 2.

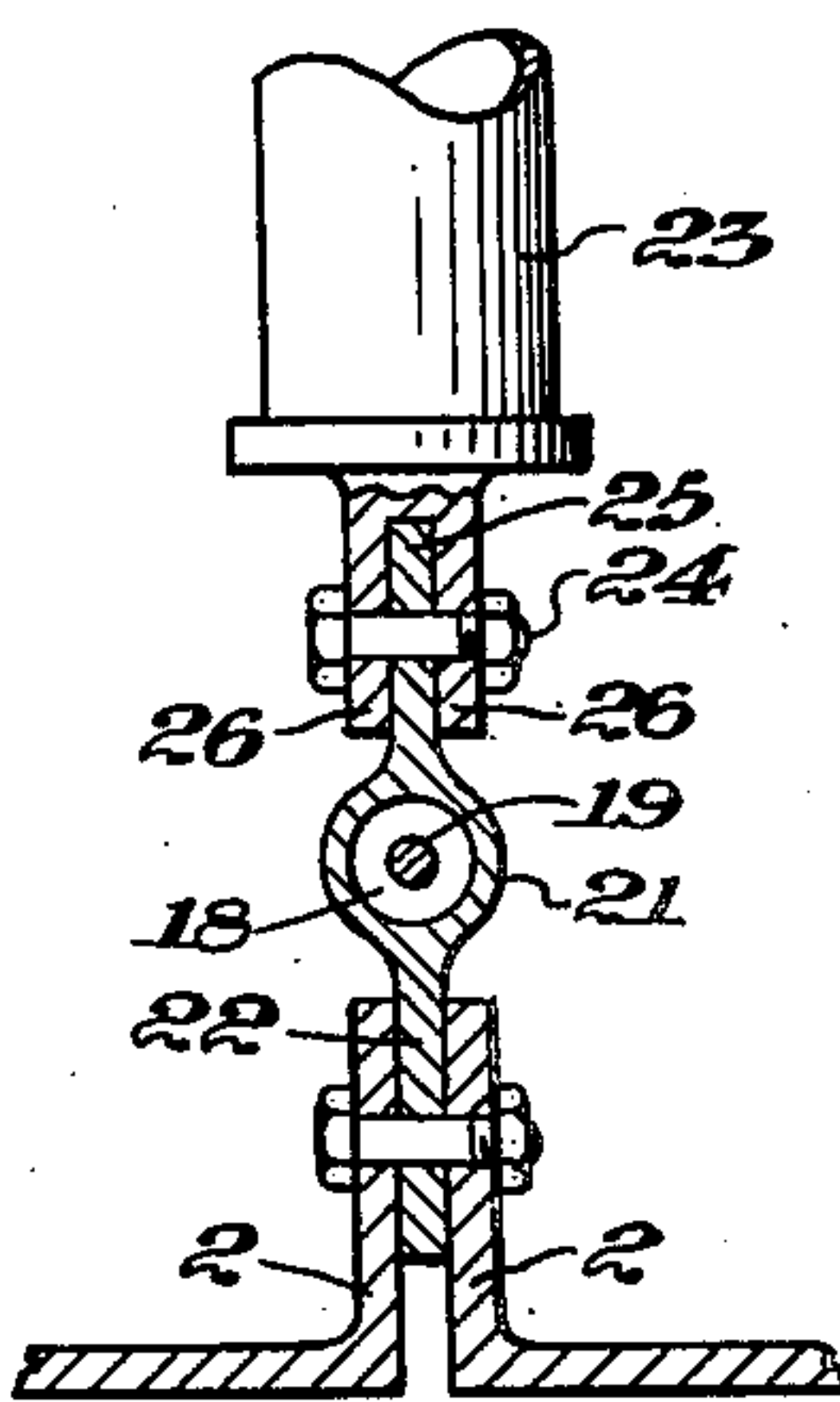


Fig. 3.

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MOVING MEANS FOR BUILDING BLOCKS

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6 Claims. (Cl. 294—88)

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My invention is an improvement in block lifting and moving means for clamping a series of side by side building blocks, either solid or cored, of the general type disclosed in my prior Patent No. 2,369,727.

The present invention utilizes fluid pressure, as air, for raising and lowering the load, block clamping means actuated by a single lever in operative relation to an opposing abutment, a single fluid actuated raising and lowering cylinder, means for applying and releasing pressure thereto and therefrom, and means for actuating the lever, as shall be more particularly described.

In the drawings, showing certain preferred constructions.

Fig. 1 is a view in side elevation of the single lever form in holding position with a series of blocks.

Fig. 2 is an end view thereof.

Fig. 3 is a cross section on line III—III of Fig. 1.

Referring to Figs. 1 and 2, the supporting frame consists of a pair of spaced apart structural bars, as angle bars 2, to one end of which is connected in any suitable manner, an operating manipulating frame 3. At one end of bars 2 is connected a rigidly attached downwardly extending clamping shoe 4 adapted to engage the outermost one of a series of blocks A.

The opposite end of framing 2 is provided with an angular shape lever 5 pivotally mounted between the bars 2, as at 6. The lever 5 depends downwardly by arm 7 and is pivotally connected, as by bolt 8, with the double sides 9, of a clamping shoe 10, having a widened face engageable against the opposite endmost block A.

The lever 5 is provided with an inwardly extending arm 11 provided with a cam-like under inclined wedging face 12. Operation of the lever is by outward movement of roller 13 pivotally mounted, as by cross bolt 14, between the sides of a carriage 15.

The carriage is provided with a terminal supporting roller or wheel 16 pivotally mounted, as at 17, and movable along the upper edges of framework 2, as a track.

The actuating element for carriage 15 is a piston or plunger 18 on the inner end of rod 19 retracted by spring 20, within an operating cylinder 21. The cylinder 21 is firmly connected with the framing 2 in any suitable manner, as by lower extensions 22, thus providing lifting and lowering connection with air cylinder 23.

The cylinder 23 is connected with the cylinder

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21 by cross pin or bolt 24, and interfitting flange 25 and cylinder extensions 26.

A pressure line 27 leads from a compressor or pump, not shown, for supply and exhaust to and from cylinder 21, and also to the upper portion of lifting cylinder 23, by branch pipe 28.

A rigid rod 29 depends from any suitable upper support, as a crane, for lateral swinging, and is provided with a piston or plunger 30. Pressure from supply line 27 to the cylinder 23, or exhaust therefrom, is controlled by a three way valve 31 controlled by suitable means, as a lever 32 and operating connection 33, leading to the operating extension 3. By such means the entire frame 2 and its parts may be raised and lowered, for transporting the load of blocks A.

Likewise, with valve 31 closed, a similar three way valve 34 in pressure pipe 27, having lever 35 and similar connection 36, controls pressure to and exhaust from cylinder 21.

As thus equipped, the frame 2, with lever 5 in retracted position, is lowered into embracing position as in Fig. 1, and with valve 31 closed, and application of pressure on piston 18 by opening valve 34, carriage 15 and roller 13 are advanced, resulting in bringing clamping pressure between shoes 10 and 4.

With valve 34 closed, lifting pressure is applied to cylinder 23, when the load may then be elevated and swung to the delivery station, and the blocks released by spring retraction of plunger 18 and lowering gravitation of arm 11, followed by outward releasing movement of shoe 10.

This application is a division of my prior application Ser. No. 734,927, filed March 15, 1947.

What I claim is:

1. Block clamping and moving means comprising a frame having at one end a holding shoe, and at the other end a lever provided with a clamping shoe and an inner cam faced terminal, a lifting and lowering cylinder and means connecting it with the frame, an outwardly and inwardly movable carriage having a roller engaging the cam face of said lever, and a motor for the carriage incorporated with the means connecting the cylinder and frame.

2. Block clamping and moving means comprising a frame having at one end a holding shoe, and at the other end a lever provided with a clamping shoe and an inner cam faced terminal, an outwardly and inwardly movable carriage having a roller engaging the cam face of the lever, a lifting and lowering cylinder, a member connecting the cylinder and frame, and means

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for moving the carriage and roller in opposite directions consisting of a motor incorporated with and forming a part of said member.

3. Block clamping and moving means comprising a frame having at one end a holding shoe, and at the other end a lever provided with a clamping shoe and an inner cam faced terminal, an outwardly and inwardly movable carriage having a roller engaging the cam face of the lever, a lifting and lowering cylinder, a member connecting the cylinder and frame, and a cylinder and piston for actuating the carriage incorporated with and forming portions of said member.

4. In combination with a supporting frame having a terminal abutment and an opposing lever having a clamping shoe and an inclined face, a lifting and lowering cylinder for the frame, a member connecting the cylinder and frame, a cylinder integral with said member provided with a piston, a roller engageable with the inclined face of the lever actuated by the piston, and means for supplying pressure to and exhaust from the cylinder of said connecting member.

5. In block clamping and moving means, the combination with a main frame having a fixed clamping shoe at one end of the frame, of a co-operating opposing lever provided with a clamping shoe and a cam face, means for actuating said lever consisting of a reversely movable clamping and releasing carriage having a cam-engaging roller, a lifting and lowering cylinder,

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a member connecting the cylinder and frame, a fluid actuated motor forming a portion of said member, a supporting rod having a piston engaging the lifting and lowering cylinder, and means for introducing fluid pressure between the piston and the upper end of the cylinder, and for releasing the same.

6. In block clamping and moving means, a supporting frame, a raising and lowering cylinder for the frame connected therewith by a pivoted member, a fixedly connected shoe member at one end of the frame, an L shaped lever pivotally connected to the opposite end of the frame having a lower clamping shoe and an upper cam faced terminal, said connecting member between the cylinder and frame including a motor and a roller-provided carriage, and adapted to extend and withdraw the roller carriage for actuating the L shape lever in imparting alternate movements thereto.

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The following references are of record in the file of this patent:

UNITED STATES PATENTS

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1,490,235	Smith et al.	Apr. 15, 1924