

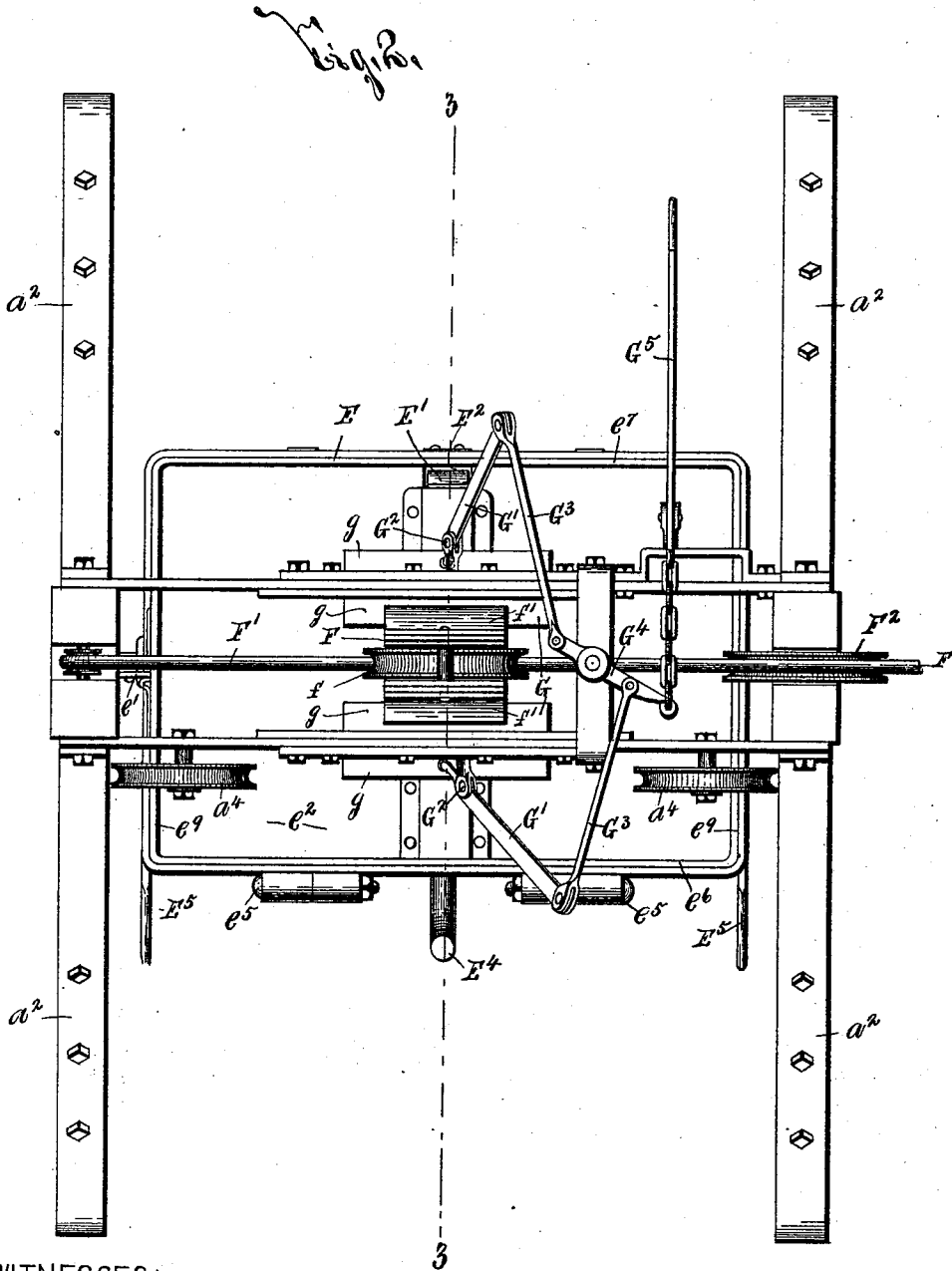
(No Model.)

4 Sheets—Sheet 2.

T. MARNELL.
HOISTING APPARATUS.

No. 545,514.

Patented Sept. 3, 1895.



WITNESSES:

H. O. Chase.
H. H. Throldg.

INVENTOR

INVENTOR
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BY

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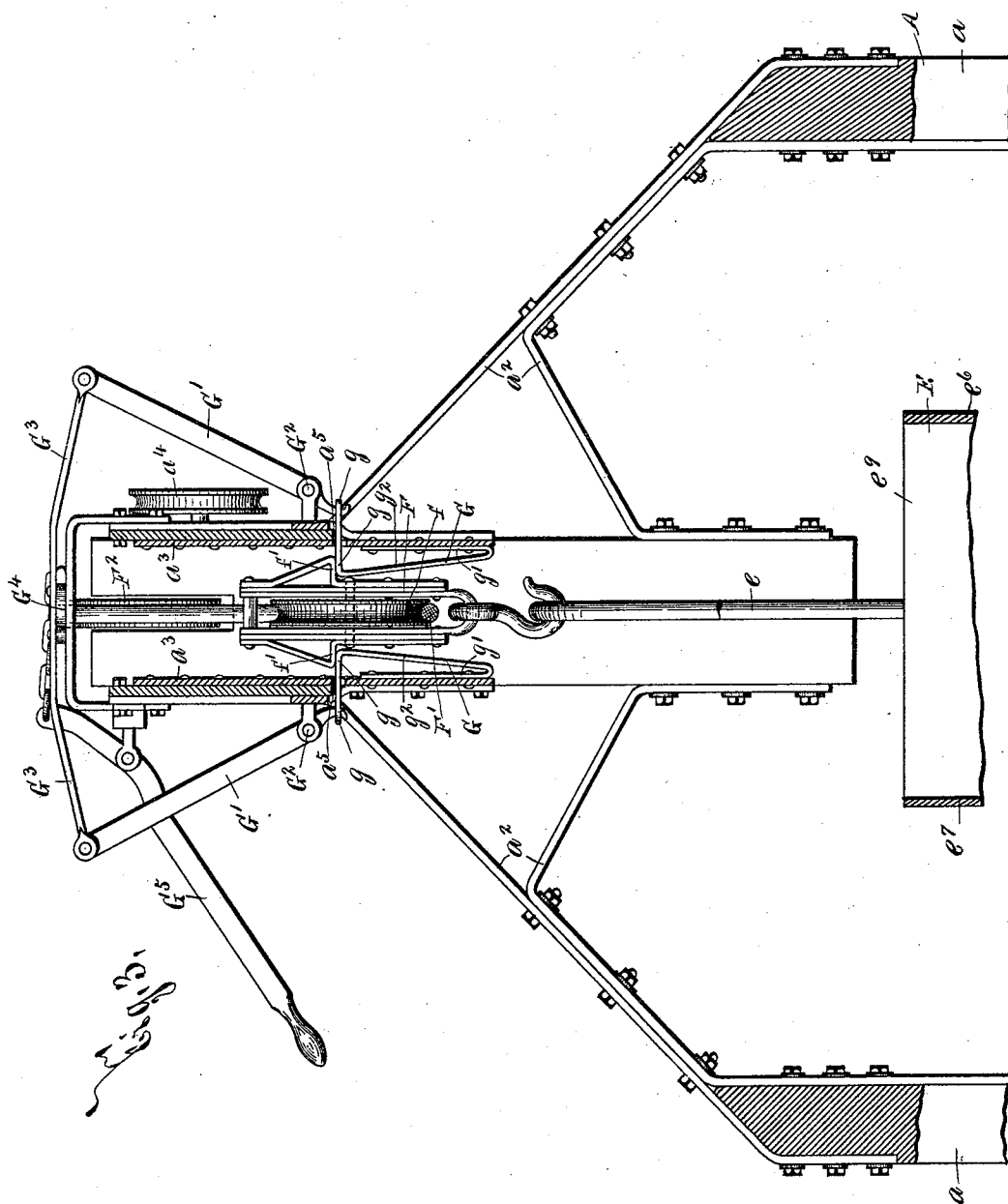
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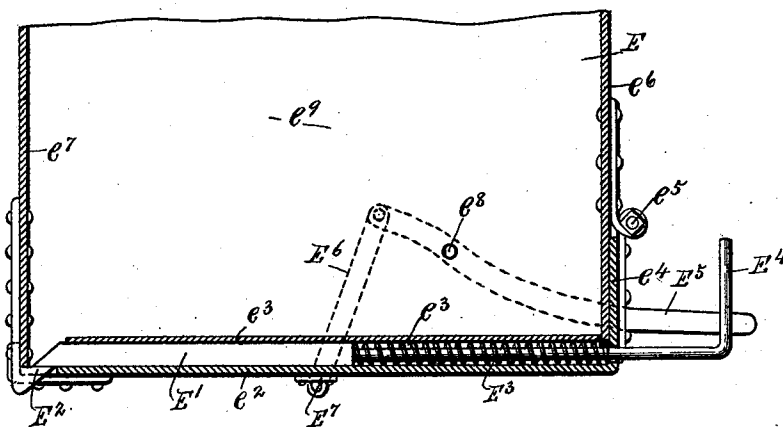
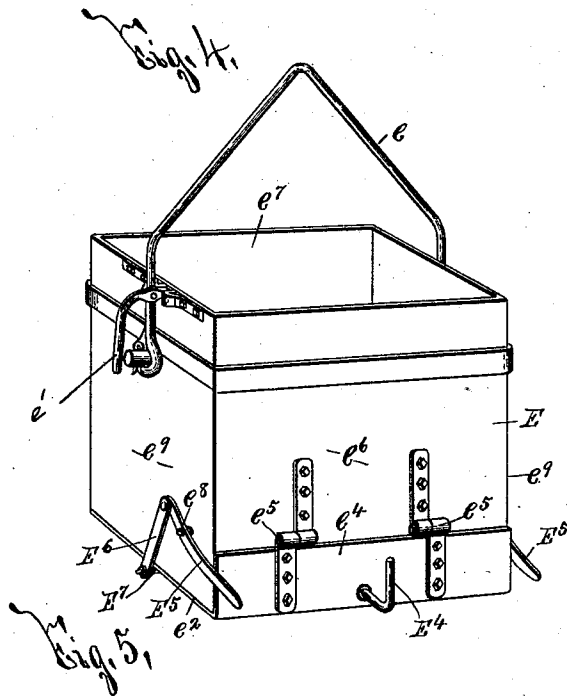
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UNITED STATES PATENT OFFICE.

THOMAS MARNELL, OF SYRACUSE, NEW YORK.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 545,514, dated September 3, 1895.

Application filed April 29, 1895. Serial No. 547,507. (No model.)

To all whom it may concern:

Be it known that I, THOMAS MARNELL, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Hoisting Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in hoisting apparatus, and has for its object the production of a simple and efficient device for economically hoisting and conveying earth or other substance from one locality to another; and to this end it consists, essentially, in the general construction and arrangement of the component parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is a side elevation, partly in section, of my hoisting apparatus, illustrating the bucket or receptacle as lowered to the bottom of a trench or excavation. Fig. 2 is a top plan of the detached upper portion of the carriage, the bucket or receptacle being shown in its elevated position. Fig. 3 is a vertical section taken on line 3 3, Fig. 2. Fig. 4 is an isometric view of the detached bucket or receptacle; and Fig. 5 is an enlarged detail section taken on line 5 5, Fig. 1.

The carriage A of my hoisting apparatus may be of any suitable material, form, size, and construction, and is provided with wheels A' movable along a tramway or track B, spanning the trench or excavation C.

As preferably constructed, the carriage A consists of upright standards or legs *a*, cross-bars *a'*, braces *a''*, and upper opposite supporting-walls *a'''*. The carriage A is moved along the tramway B by a rope or cable D, having its central portion passed over idlers *a''*, journaled in the upper end of the carriage, and its opposite ends secured to opposite sides of the carriage and passed, respectively, over a drum D' and an idler D'', arranged at opposite sides of said carriage. The drum D' is journaled in a suitable support D³, and any desirable actuating mechanism is utilized for reversely rotating the drum D' and thereby re-

ciprocating the carriage along the tramway B. The idler D² is secured to a fixed support D⁴ by a suitable fastener D⁵, which permits said idler to move lengthwise of the tramway B.

E is a bucket or receptacle for my improved hoisting apparatus, which is of any suitable construction and is connected in any desired manner to a support F for detachably engaging the upper end of the carriage and supporting the bucket or receptacle in its elevated position. The support F is provided with a wheel or pulley *f*, interposed between its opposite side walls, and one end of a hoisting rope or cable F' is passed beneath said wheel or pulley and is fixed to the upper end of the carriage A. The opposite end of the rope or cable F' is passed over an idler F², journaled in the upper end of the carriage, and is secured to a drum F³, connected to suitable mechanism for revolving the same in opposite directions and thereby effecting elevation and permitting depression of the bucket or receptacle E, and also permitting movement of the carriage A along the tramway B.

The bucket or receptacle E is provided with the usual hinged bail *e* and levers *e'* for holding the bail in its fixed position, and is also provided with a hinged bottom wall *e''*, formed with a transverse guide *e'''*, and having one side edge formed with an upwardly-projecting shoulder *e''''*, hinged at *e'''''* to the adjacent upright wall *e''''''* of said bucket. A lock E' is movable lengthwise in the guide *e'''*, and one of its extremities projects beyond said guide and engages a fixed shoulder E², suitably secured to an upright wall *e''''''* of said bucket. A spring E³, within the guide *e'''*, forces the lock E' into operative engagement with the shoulder E² and a hand-piece E⁴, movable through the upturned shoulder *e''''''* and connected to said lock, withdraws the same from operative position when it is desired to empty the bucket or receptacle E. Levers E⁵ are pivoted at *e''''''''* to opposite upright walls *e''''''''* of the bucket or receptacle E, and their corresponding ends are connected to the upper ends of links E⁶, having their lower ends secured by a tie-bar E⁷ to the movable bottom wall *e''*, and said levers and links E⁵ E⁶ operate to return the movable wall *e''* to its normal position.

The support F is provided with engaging-shoulders *f'*, extending laterally from its op-

posite side faces and formed with downwardly-inclined upper faces. This support is movable between the opposite walls a^3 of the carriage A, and its shoulders f' detachably engage shoulders g , preferably formed upon spring-bars G, suitably secured to the walls a^3 . The bars G are preferably formed with upturned lower ends g' , secured by suitable fastening means to the inner faces of the walls a^3 , intermediate portions g^2 , extending toward each other from the lower extremities of the ends g' and upper ends g , extending laterally from the upper extremities of the intermediate portions g through perforations a^5 , formed in the walls a^3 above the ends g' . The intermediate portions g^2 of the spring-bars are engaged and forced inwardly by the upper inclined faces of the shoulders f' of the support F as said support is elevated, and as the lower ends of the shoulders f' are raised above the shoulders g the intermediate portions of the spring-bars G spring toward each other and the shoulders g are engaged with the shoulders f' and firmly hold the support F in its elevated position. The shoulders g operate with great effectiveness, as the lower walls of the perforations a^5 prevent their undue depression.

G' are levers pivoted at G^2 to the outer faces of the walls a^3 and having their lower ends engaged with the outer extremities of the shoulders g for separating the same and permitting descent of the support F. The upper ends of the levers G' are hinged to the outer extremities of links G^3 , having their inner ends hinged to the opposite extremities of a rocking lever G^4 , pivoted to the upper end of the carriage A and suitably connected to an actuating-lever G^5 for operating the lever G^4 and simultaneously rocking the levers G'.

In the operation of my improved hoisting apparatus the bucket or receptacle E is lowered to the desired depth by the drum F³, which is reversely operated to elevate the filled bucket until its support engages the yielding shoulders of the carriage. The drum D' is revolved for moving the carriage along the tramway B, and this movement is permitted by a corresponding rotation of the drum F³. The lock E' is operated to permit dumping of the bucket or receptacle E, and one of the levers E⁵ is then actuated to force the bottom wall of the said bucket to its operative position; and, finally, the drum D' is reversely revolved for withdrawing the carriage A from its dumping position, and the lever G^5 is actuated for permitting depression of said bucket.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hoisting apparatus, the combination of a carriage A having opposite substantially parallel supporting walls a^3 formed with perforations a^5 therethrough, spring bars G having their lower ends g' secured to the sup-

porting walls a^3 , and their opposite ends g movable through the perforations a^5 and provided with engaging shoulders projecting laterally from the adjacent faces of said supporting walls, a support F movable between the walls a^3 and having its opposite sides formed substantially parallel and provided with shoulders f' for automatically engaging the former shoulders, a bucket or receptacle E connected to said support, and means for raising and lowering the bucket, substantially as and for the purpose set forth.

2. In a hoisting apparatus, the combination of a carriage having opposite supporting walls formed with perforations therethrough, spring bars having corresponding ends extending upwardly beneath the perforations and secured to the inner faces of the supporting walls, their intermediate portions extending toward each other from the lower extremities of said ends, and their opposite ends extending laterally from the upper extremities of said intermediate portions through the perforations in said walls for forming yielding engaging shoulders, a support movable between the supporting walls and having its opposite sides provided with shoulders for forcing the inclined intermediate portions of the spring bars inwardly and engaging the former shoulders, and a bucket or receptacle connected to the support, substantially as and for the purpose set forth.

3. In a hoisting apparatus, the combination of a carriage, spring engaging shoulders secured to the carriage, a vertically movable support provided with shoulders for engaging the former shoulders, a bucket or receptacle connected to the support, a pair of levers secured to opposite sides of the carriage for forcing the engaging shoulders from operative position, and a lever pivoted to the carriage and connected to the former levers for operating both simultaneously, substantially as and for the purpose specified.

4. In a hoisting apparatus, the combination of a carriage, spring engaging shoulders secured to the carriage, a vertically movable support provided with shoulders for engaging the former shoulders, a bucket or receptacle connected to the support, a pair of levers pivoted to the carriage and having corresponding extremities connected to said engaging shoulders for forcing the same from operative position, links pivoted to the opposite ends of the former levers, a rocking lever having its opposite ends pivoted to the adjacent ends of the links, and an actuating lever connected to the rocking lever for operating the same, substantially as and for the purpose set forth.

5. In a hoisting apparatus, the combination of a carriage having opposite supporting walls formed with perforations therethrough, spring bars having corresponding ends secured to the supporting walls, and their opposite ends movable through the apertures and

provided with engaging shoulders projecting laterally from the adjacent faces of the supporting walls, a support movable between said walls and having its opposite sides provided with shoulders for automatically engaging the former shoulders, a bucket or receptacle connected to the support, a pair of levers pivoted to the outer faces of the supporting walls, and having corresponding ends engaged with the projecting ends of said spring bars, links pivoted to the opposite ends of said levers, and a rocking lever having its opposite ends pivoted to the adjacent ends of the links for actuating the pivoted levers, substantially as and for the purpose described.

6. In a hoisting apparatus, the combination of a support, a bucket or receptacle secured to the support and provided with a fixed shoulder, and a movable bottom wall, provided with a transverse guide, and having an upturned shoulder projecting from one side edge and hinged to the adjacent upright wall of the bucket or receptacle, a lock movable in the guide for detachably engaging the fixed shoulder, a hand piece movable through the upturned shoulder for operating the lock, and a spring arranged in the guide for forcing the

lock into operative position, substantially as and for the purpose specified.

7. In a hoisting apparatus, the combination of a support, a bucket or receptacle secured to the support and provided with a fixed shoulder, and a movable bottom wall, provided with a transverse guide, and having an upturned shoulder projecting from one side edge and hinged to the adjacent upright wall of the bucket or receptacle, a lock movable in the guide for detachably engaging the fixed shoulder, a hand piece movable through the upturned shoulder for operating the lock, a spring arranged in the guide for forcing the lock into operative position, a lever pivoted to an upright wall of the bucket or receptacle, and a link connected to one end of the lever and to the bottom wall, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 8th day of December, 1894.

THOMAS MARNELL.

Witnesses:

H. E. CHASE,
ANTONIO MERCURIO.