

No. 750,166.

PATENTED JAN. 19, 1904.

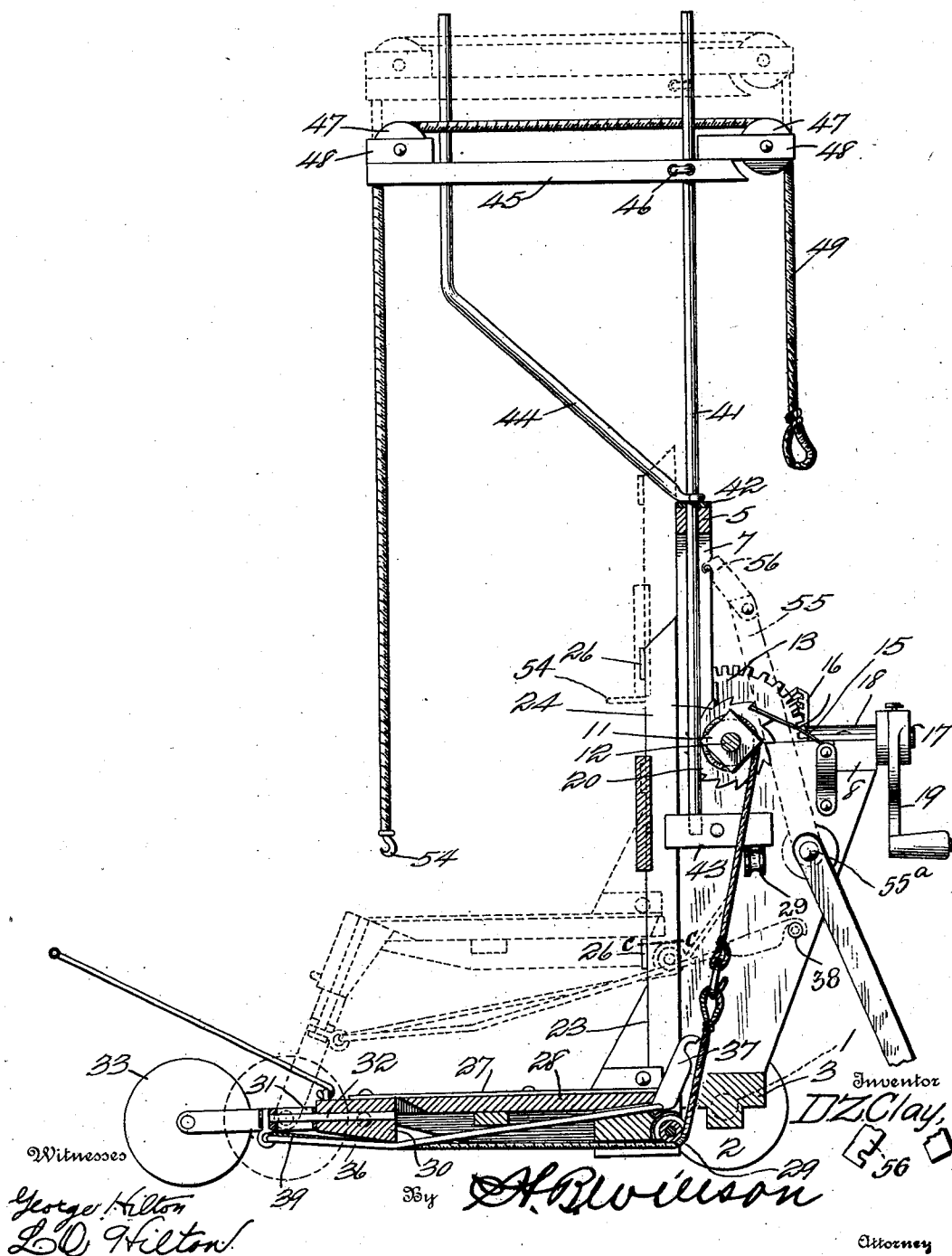
D. Z. CLAY.  
COMBINED TRUCK AND HOIST.

APPLICATION FILED FEB. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG-1-



No. 750,166.

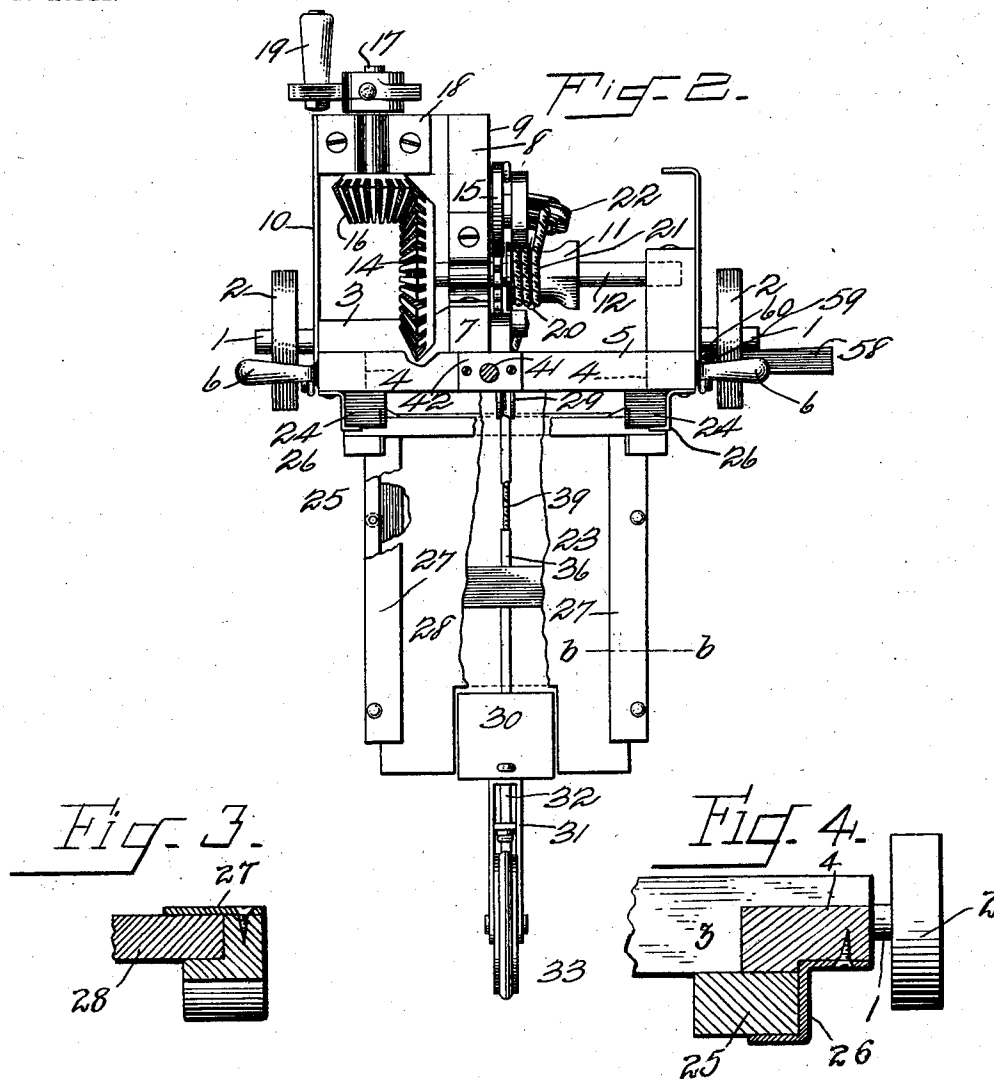
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2 SHEETS—SHEET 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

DAVID Z. CLAY, OF EAST HANOVER, PENNSYLVANIA.

## COMBINED TRUCK AND HOIST.

SPECIFICATION forming part of Letters Patent No. 750,166, dated January 19, 1904.

Application filed February 12, 1903. Serial No. 143,074. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID Z. CLAY, a citizen of the United States, residing at East Hanover, in the county of Lebanon and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Truck and Hoist; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in combined trucks and hoists adapted for use in warehouses and other places for lifting, lowering, and moving bulky and heavy articles, packages, and the like; and it consists in the peculiar construction and combination of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a combined truck and hoist embodying my improvements, showing the platform lowered in full lines and raised in dotted lines. Fig. 2 is partly a top plan view of the same and partly a horizontal section, taken on the plane indicated by the line *a a* of Fig. 1. Fig. 3 is a detail sectional view taken on the plane indicated by the line *b b* of Fig. 2. Fig. 4 is a similar view taken on the plane indicated by the line *c c* of Fig. 1.

In the embodiment of my invention here shown I provide an axle 1, having supporting-wheels 2 on spindles at its ends, and to which axle is attached a frame 3, which comprises a pair of side bars 4, a cross-bar 5, which connects the outer or upper ends thereof and is provided at its ends with projecting handles 6, and an intermediate bar 7, which is disposed at a suitable distance from one of the side bars 4.

A frame 8, which is perpendicular to the frame 3, is attached to one of the bars 4 and to the intermediate bars 7 of said frame 3 and is braced by braces 9 10, the former being shown as formed integral with said intermediate bar 7. A winch 11 is journaled in bearings 12, which are secured to one of the bars 4, the bar 7, and the frame 8 and is provided at its inner end with a beveled gear 13. A ratchet-wheel 14 is attached to and revoluble

with the winch. A pawl 15 is pivotally connected to the frame 8 and is adapted to be engaged with the said ratchet-wheel to prevent the winch from rotating in one direction and is also adapted to be disengaged from the ratchet-wheel to permit the winch to rotate in either direction. The gear 13 is engaged by a bevel-pinion 16, which is on the inner end of a shaft 17, which is journaled in the bearing 18, with which the frame 8 is provided. To the outer end of the said shaft is attached a crank 19, which may be turned manually to cause the winch to be rotated in either direction, as may be required. A hook 20 is here shown as connected permanently to the winch by a chain or rope 21 and serves for the attachment of either of a pair of hoisting-ropes hereinafter described. The frame 3 has a direction-sheave 22.

A frame 23 is formed with arms 24 25, which are disposed at right angles to each other. The arm 24 of said frame 23 is slidably connected to the side bars of the frame 3, as by guides 26, with which said frame 3 is provided. The arm 25 of said frame 23 is provided with guides 27, in which a platform 28 is fitted, the said platform 28 being thereby adapted to be moved in and out in and with reference to the arm 25 of said frame 23. The latter frame is provided at the angle formed by its arms with a direction-sheave 29. At the outer end of the platform 28 is a pivotally-mounted block 30. A frame 31 is pivotally connected to the frame 30 by a swivel-bolt or similar device 32 and carries a supporting-wheel 33, the latter coacting with the wheels 2 to support the combined truck and hoist and enable the same to be wheeled in any direction. To the said swiveled frame is attached a rod or similar suitable element 36, which is here shown as provided at one end with a handle 37, that may be attached to and disconnected from a stud 38, that projects from one side of the bar 7 of frame 3. When this rod has its handle 37 attached to said stud, the standard, comprising the block 30 and the swivel-frame 31, that carries the wheel, may be locked in position to support the outer end of the platform 28 when the latter is in an elevated position, as shown in dotted lines in Fig. 1. When the said rod is

disconnected from the frame 3, the said standard may be disposed in nearly a horizontal position to permit the lowering of the platform 28 and the slidable frame 23, which carries it.

A rope, chain, or other suitable flexible element 39 is attached to the frame 31, engages the direction-sheaves 29 22, and is adapted to be attached to the winch by the hook hereinbefore described, so that by turning the winch in the direction required to wind up said rope the frame 23 may be raised on the frame 3 to cause the platform 28 and any weight placed thereon to be also raised, the said rope also acting to turn the standard, which carries the wheel pivotally, so that the outer end of the said platform is simultaneously raised, as will be understood.

It will be understood that the frame 23 and the platform 28 will be lowered when placing a heavy article on the platform or taking the same therefrom, and that when the article has been so disposed on the platform and the same has been raised by raising the frame 23 the truck may be wheeled to the point where it is desired to deposit weight. I also combine with the truck a hoist and elevating apparatus, which I will now describe and which is adapted for use in loading and unloading the truck.

A pivot-shaft 41 is journaled in a bearing 42 on the bar 5, and its lower end is stepped in a bearing 43 on the bar 7 of frame 3. Hence said pivot-shaft is detachably and pivotally connected to said frame 3 and may be either used in connection with the hoist and truck or removed therefrom at will. Said shaft has a brace-arm 44 projecting therefrom, the outer portion of which is disposed parallel with the shaft 41, and the arm 45 is provided with openings, through which the shaft 41 and the parallel portion of brace-arm 44 pass, said arm being vertically adjustable thereon and provided with clamping-screws 46, which are adapted to engage and disengage said shaft and the vertical portion of said brace-arm to lock the arm 45 thereto at any desired adjustment, and said set-screws having cranks at their outer ends by which they may be readily turned, as will be understood. At the ends of the arm 45 are sheaves 47, which are mounted in suitable bearings 48 and over which passes a hoisting-rope 49, which may be engaged with the direction-sheave 22 and attached to the winch when the rope for raising or lowering the frame 3 and platform 28 has been disconnected therefrom, and it will be understood that when thus arranged the winch and said rope 49 may be employed for raising and lowering weights and loading and unloading same. It will be understood that this hoisting apparatus may be swung in any direction desired to facilitate the handling of the weights.

When the frame 23 has been raised to elevate a weight on the platform 28, suitable pins

54 will be inserted in registering openings with which the frames 3 and 23 are provided to coact with the rod hereinbefore described to support the weighted platform in its elevated position.

To prevent overturning of the combined truck and hoist when handling very heavy articles in loading and unloading the same, I provide a brace 55, which is pivotally connected, as at 55<sup>a</sup>, to the bar 7 or other suitable portion of the frame 3 and which is provided with a hook 56 to support said brace in operative position, as indicated in Fig. 1, said brace being supported by said hook in an elevated position when the same is not in use, as indicated in dotted lines in the said figure. I also provide a brace 58, which may be detachably connected to one side of the frame 3, as by a hook 59, with which said brace is provided, and an eye 60 on one side of said frame 3.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A combined truck and hoist comprising a frame having supporting devices whereby it may be moved from place to place, a frame slidably connected to the first-mentioned frame and adapted to be raised and lowered, and having a pivoted standard provided with a supporting device, a winch carried by the first-mentioned frame, and a flexible connecting element adapted to be attached to said winch, engaged with said slidable frame and also to said pivoted standard, substantially as described.

2. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, and a slidable platform carried by said hoisting-frame, substantially as described.

3. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, a platform carried by said hoisting-frame, and a supporting element carried by said platform and movable angularly with reference thereto, substantially as described.

4. In a combined truck and hoist, a truck-frame, a hoisting-frame slidably connected thereto, means to raise and lower said hoisting-frame, and means to secure said hoisting-frame to said truck-frame at any desired adjustment of the former, substantially as described.

5. In a combined truck and hoist, a truck-

frame, a hoisting-frame adapted to be raised and lowered thereon, a supporting element connected to the hoisting-frame and movable angularly with relation thereto, and means for  
5 simultaneously raising or lowering said hoisting-frame and moving said supporting element angularly, substantially as described.

6. In a device of the class described, the combination of a frame, a hoisting-frame, carried  
10 thereby, a supporting element for said hoisting-frame, adapted for angular movement, and

means to simultaneously raise or lower said hoisting-frame and impart angular movement to said supporting element, substantially as described. 15

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID Z. CLAY.

Witnesses:

AMOS D. CLAY,  
CHARLIE G. GANTZ.