

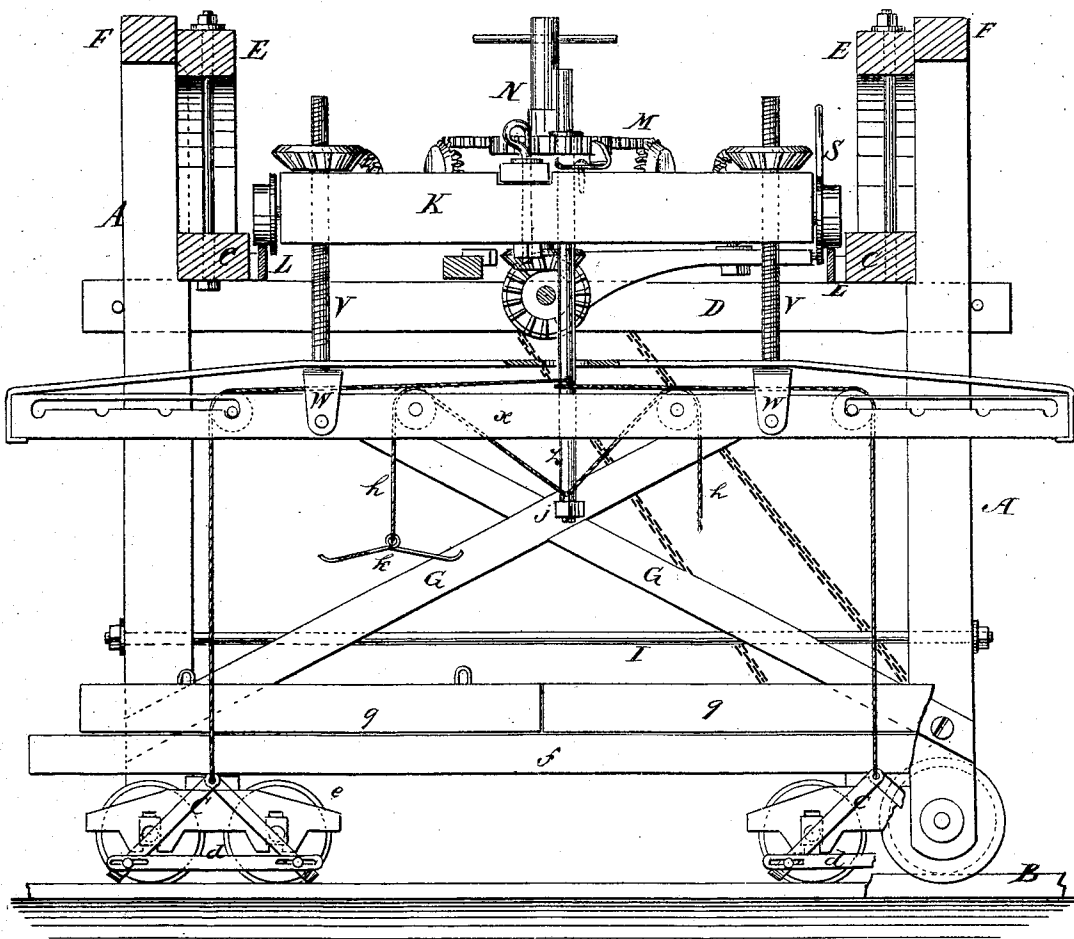
W. T. BEEKMAN.

Elevating and Transferring Apparatus of Railroad Cars.

No. 145,611.

Patented Dec. 16, 1873.

Fig. 1.



WITNESSES.

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Chas. Vida.
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INVENTOR.

W. L. Beckman

BY

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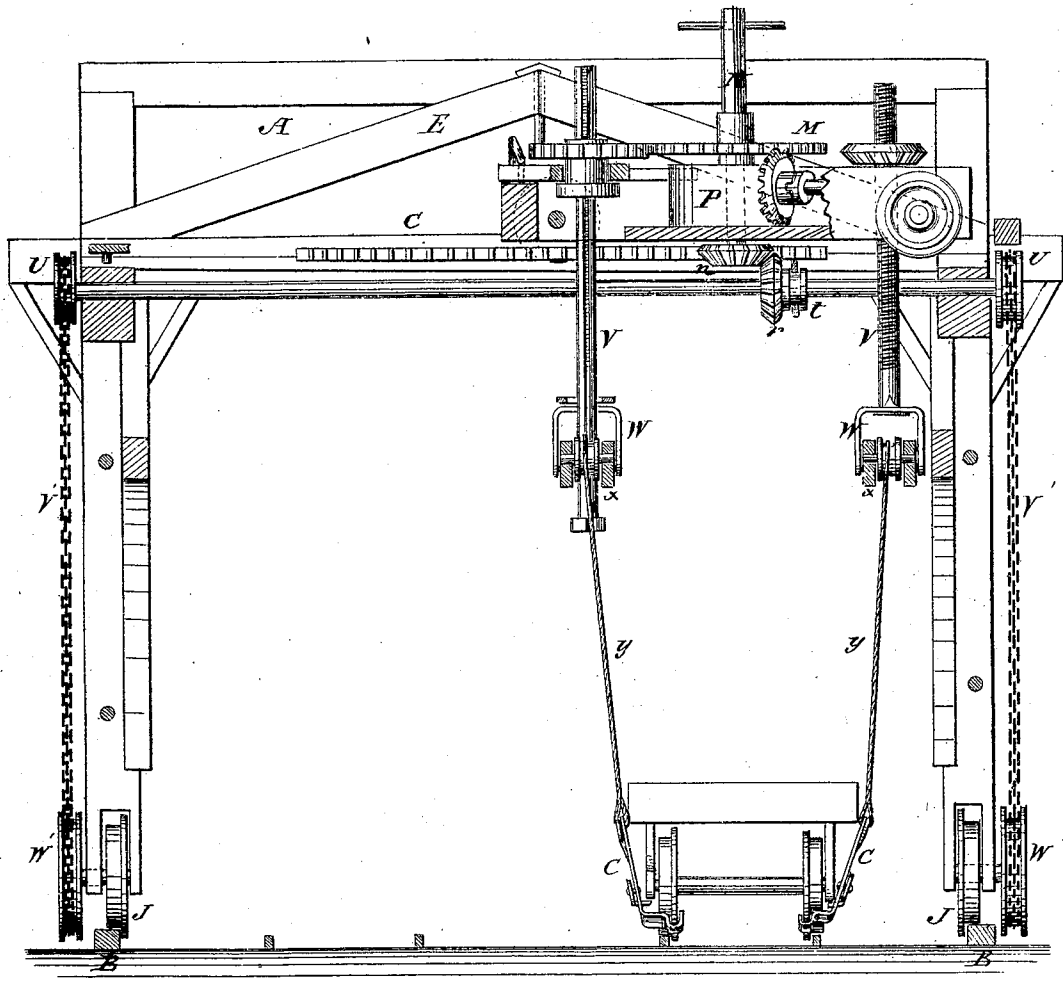
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Fig: 2



WITNESSES.

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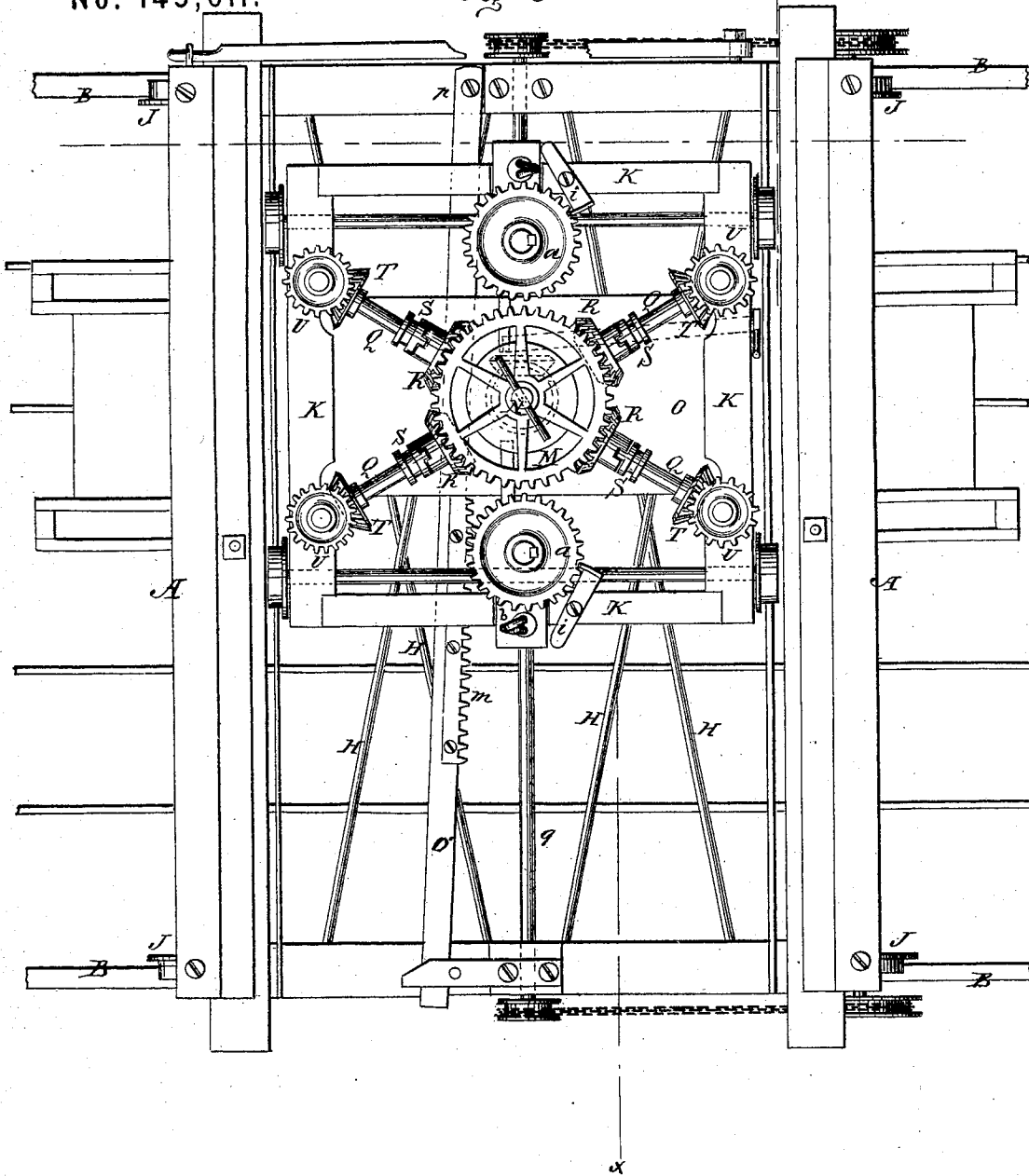
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Fig. 3

Patented Dec. 16, 1873.



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UNITED STATES PATENT OFFICE.

WILLIAM T. BEEKMAN, OF PETERSBURG, ILLINOIS.

IMPROVEMENT IN ELEVATING AND TRANSFERRING APPARATUS OF RAILROAD-CARS.

Specification forming part of Letters Patent No. **145,611**, dated December 16, 1873; application filed November 1, 1873.

To all whom it may concern:

Be it known that I, WILLIAM T. BEEKMAN, of Petersburg, in the county of Menard and State of Illinois, have invented a new and useful Improvement in Transferring Apparatus for Railroads, of which the following is a specification:

My invention relates to a wheeled framework and truss for spanning two or more railway-tracks, and lifting (vertically) rail-cars, either empty or loaded, from one track and carrying them at right angles, or obliquely to, another track, thereby superseding the necessity of using the main track and ordinary switch-engine for breaking and making up trains, and for raising (vertically) the beds of cars from one set of trucks and carrying them to such place as may be desired for replacing them upon other trucks, or for the purpose of transferring freight.

The apparatus contemplates cars divided into sections, for the purpose of facilitating the handling of coal or other freight, the placing of such sections on wagons, thereby avoiding the breaking of bulk between the mines and place of final delivery.

Swing-beams are employed, which carry adjustable pulley-blocks that may be reduced or extended to the desired extent.

There is such a system of horizontal bracing as enables the machine to resist the strain or thrust from any direction, and preserves the necessary room for the passage of trains, and the necessary passway for the lifting chains or cables.

In the accompanying sheets of drawing, Figure 1, sheet 1, represents a side elevation of the apparatus. Fig. 2, sheet 2, is a vertical section of Fig. 3 taken on the line *x x*. Fig. 3, sheet 3, is a top view.

Similar letters of reference indicate corresponding parts.

A represents a substantial truss-frame, which is made to span two or more railroad-tracks, which is supported on rails B B, which are outside of the railroad-tracks, so that this frame does not interfere with the traffic of the road. This frame is made with trussed beams C C and girders D D. E E are the trusses. F F are plates on the tops of the posts, parallel with the beams C C, and are connected with the trusses at the center. G are diagonal braces, by means of which the girders D

D are supported. H are horizontal diagonal rods, which run from one side to the other and connect the girders. I are rods, which connect the posts of each side. The rods are all provided with screw-nuts, by means of which the frame may be drawn together and made rigid. J represents flanged truck-wheels in the lower ends of the posts, which run on the outside rails B and support the frame. K is a carriage mounted on truck-wheels which run on the ways L L, parallel with the beams C C, or at right angles with the railroad-tracks. This movement of the carriage across and above the railroad-tracks allows cars, trucks, or freight to be transferred from one track to another when they are suspended from the carriage.

The manner of moving the carriage, and raising and suspending cars, trucks, platform, or freight, so that they may be transferred, I will now proceed to describe. The gearing for raising and lowering, and also for imparting horizontal motion, is seen in Fig. 3.

M is a master-wheel, which is attached to the vertical shaft N in the center of the carriage. O is the bottom of the carriage. On this bottom is a central stationary block, P, which supports the central shaft N. Q represents horizontal shafts, whose inner journals are supported by the block P. These shafts radiate from the central block, with their outer journals supported by the carriage, as seen. R represents bevel-wheels on the inner ends of these shafts, which mesh with the master-wheel, but turn freely on their respective shafts, except when they are coupled to and turn with the shafts, by means of the sliding clutch-coupling S. On the outer ends of these shafts are bevel-wheels T, which mesh into, and are constantly engaged with, the bevel-wheels *u*. These bevel-wheels *u* are on the lifting-rods V, which rods pass through the carriage, and are attached, by means of clevises W, to the long lifting-beams *x x*. The wheels *u* are attached to the lifting-rods by means of screw-threads, as seen in Fig. 1. The two lifting-beams (with whatever may be attached to them) are simultaneously or separately raised or lowered by revolving the wheels *u* on the lifting-rods V. This is accomplished, it will be seen, by coupling the wheels R to their shafts and revolving the master-wheel. Y represents the lifting-chains.

These chains (or ropes, if preferred,) pass over pulleys in the lifting-beams, (which latter are slotted or mortised out for the purpose,) and pass through a hole, or are attached in some equivalent manner to the windlass-shafts *Z Z*. The ends of the lifting-beams *x x* extend out from the frame to allow the pulleys, over which the lifting-chains pass, to be moved and adjusted to suit the length of the car or truck which is to be raised, as seen in the drawing.

These windlass-shafts *Z Z* are revolved by means of spur-wheels *a*. The shafts work up and down through the wheels on feathers as the lifting-beams are raised and lowered; and the wheels are thrown in and out of gear with the master-wheel by means of eccentric shifters *b*. The windlass-shafts revolve rapidly, and the lifting-chains are wound up upon them to take up the slack, and make them taut before they are subjected to a greater strain in raising the burdens to which they are attached.

On the ends of the chains are crabs *c*, which are made adjustable by means of the slotted bars *d*. (See Fig. 1.) These crabs take hold of the peripheries of the wheels; by which means I avoid the slack of the wheel-journals, which it would be necessary to overcome if the hold were taken on the truck, or any other part of the car. The crab is made adjustable, to suit cars or trucks of different make. *e* represents the truck, *f* the platform, and *g* the sections or compartments—four, more or less—which are placed on the platform for containing coal or other freight. These sections are separately raised from the platform, and transferred to other cars, or to wagons, by means of the ropes or chains *h*, which are attached to windlasses, and are wound up in the manner already described for taking up the slack in the lifting-chains. *i* represents pawls, by means of which the windlasses are held stationary when the wheels *a* are thrown out of gear with the master-wheel. The chains *h* are brought down from the pulleys seen in dotted lines in the lifting-beams, and enter slots in the ends of the windlass-shafts, when they are secured by the nuts *j*. *k* are crabs on the ends of these chains *h*.

Hooks or any other suitable device may be used instead of the crabs for taking hold of the sections or other freight.

The horizontal movement of the carriage, by which a car, or truck, or platform, or freight of any kind, is transferred, is produced by means of the rack *m*, which meshes with the wheel *n*. This wheel is on the end of the central or master shaft; and the rack is attached to the rack-bar *O'*, one end of which is pivoted to the frame-girder, as seen at *p*. The other end is made to slide on the other girder, so as to throw the rack in and out of gear with the wheel *n*. This rack may extend the entire length of the bar, so as to move the carriage over all the tracks spanned by the frame. The master-wheel being re-

volved, this horizontal movement will take place, and the transfer will be made.

The carriage may be decked over, so that a man or a horse may be employed to revolve the master-wheel by means of a lever through or on the master-wheel shaft.

For the purpose of moving the whole apparatus on its own tracks to accommodate the various positions in which it may be necessary to use it, I employ a central shaft, *q*, which extends from one girder to the other, and revolves thereon. On this shaft is a bevel-wheel, *r*, which slides on the shaft, and is thrown in or out of gear with the wheel *n* by means of the shifting-lever *s*, (see Fig. 1,) which is attached to the grooved collar *t*. (Seen in Fig. 2.) *U U* are chain-pulleys on the ends of this shaft. *V' V'* are endless chains thereon, which pass over the chain-pulleys *W' W'* on the ends of the axles of the truck-wheels of the apparatus.

The bevel-wheel *r* slides on a feather, so that when it is thrown into gear with the wheel *n* the entire apparatus is moved, in either direction, on its own track, as the master-wheel may be revolved in either direction.

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

1. The combination, with a wheeled frame for spanning two or more railway-tracks, of a carriage provided with lifting-rods and gearing and windlass-shafts for hoisting cars, car-bodies, or sections thereof, and a track or ways, *L L*, for the carriage, arranged on said wheeled frame obliquely, or at right angles to the tracks, substantially as shown and described, to operate as specified.

2. The combination of the chains and chain wheels or pulleys with the wheels *J*, truss *A*, and gearing connected therewith, for moving the truck on the track *B*, as shown and described.

3. The combination of the swing-beam *x*, crabs *C*, chains *y*, clevises *w*, screw-shafts *v*, radial shafts *Q*, master-wheel *M*, and carriage *K*, arranged as shown and described, to operate as specified.

4. The combination, with the swing-beams, of the shaft *Z*, chains or cords *h*, having crabs or hooks attached and passing over pulleys, as shown and described.

5. The combination, with the wheeled truck-frame *A*, of the rack *m*, wheel *n*, carriage *K*, and ways *L*, arranged at right angles to the rails *B*, as and for the purpose specified.

6. The swing-beams *x x*, provided with adjustable or notched bearing at their ends, to adapt the pulleys or chains for suspending cars or car-sections, to be shifted toward or from each other, corresponding to the size of car or car-section, as specified.

WILLIAM T. BEEKMAN.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.