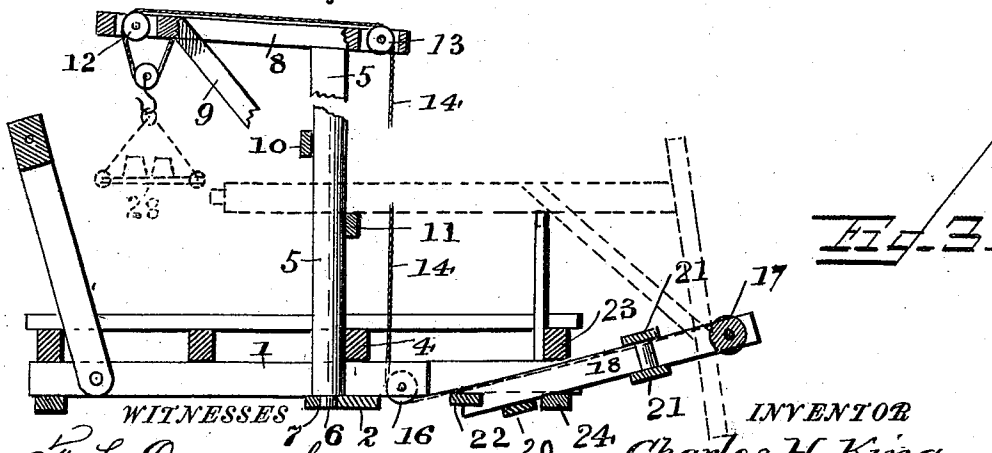
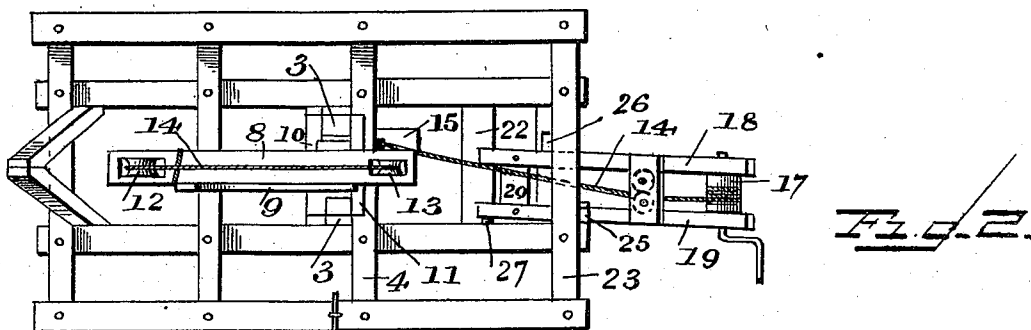
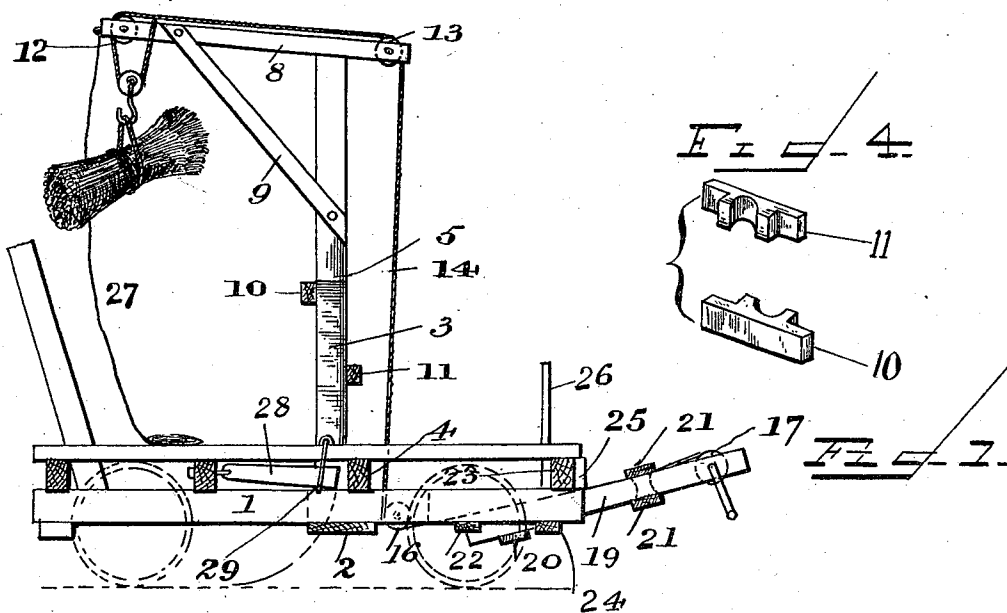


(No Model.)

C. H. KING.
PORTABLE CRANE.

No. 501,147.

Patented July 11, 1893.



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PORTABLE CRANE.

SPECIFICATION forming part of Letters Patent No. 501,147, dated July 11, 1893.

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To all whom it may concern:

Be it known that I, CHARLES H. KING, a citizen of the United States, residing at Jesup, in the county of Buchanan and State of Iowa, have invented certain new and useful Improvements in Portable Cranes, Derricks, or Windlasses; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to wagon derricks or cranes, and more particularly to that class which are used for loading and unloading corn-fodder in the shock without untying it, and it has for its object to produce such a device as can be cheaply and substantially made and applied to any ordinary wagon, or bed, and which can be secured thereto or detached therefrom easily and quickly, and it consists in the improved construction and arrangement of parts as will be hereinafter more particularly set forth.

Referring to the accompanying drawings in which the same reference numerals indicate corresponding parts in each of the views, Figure 1 is a side view of a rack provided with my improved crane or derrick. Fig. 2 is a top-plan view of the same and Fig. 3 is a longitudinal vertical section, and Fig. 4 is a detail view.

Referring more particularly to the drawings, 1 indicates a rack for a wagon which may be of any ordinary construction.

2 is a board firmly secured to the bottom thereof about midway of its length.

3, 3, are the posts or uprights which are secured to the board and also to the cross-piece 4 of the rack, and which project above the rack any desired distance.

5 is the standard or main post of the crane which is provided with a journal or gudgeon 6 at its lower end which fits in a hole 7 in the board 2 and is provided with the gib or cross-piece 8 at the top and the brace 9 for supporting the outer end of the gib.

Two blocks or cross-pieces 10 and 11 at the top of the posts 3, engage with the standard 5 and hold it in a vertical position. I prefer to locate these two blocks one above the other,

that is, one of them, as 10, at the top and the other one, as 11, a little below the top, so that in driving into a barn or other place that would be too low for the passage of the crane, the lower end of the standard can be lifted out of the hole in the board at the bottom of the rack and the crane can be laid down in a horizontal position, as shown in dotted lines in Fig. 3. By locating them, one above the other, they also assist in bracing the posts against lateral movement when the strain comes upon the crane in lifting the load at the side of the rack. I prefer to make the standard about ten feet long although it can be made higher or lower, and the posts, 3, 3, may be about four feet high or sufficiently to properly brace the standard in its upright position.

The posts 3, 3, are firmly secured to the board 2 in any suitable manner, as for instance by means of bolts or by mortise and tenon, and may likewise be secured to the cross-piece 4 by bolts passing through them or by means of a stirrup or clamp fitting over the cross-piece, so that they can be easily moved from the rack when it is not desired to use the crane or derrick.

By locating the blocks and posts as above described, a very substantial construction is secured and also a very convenient one, as by placing the blocks one above the other and upon opposite sides of the posts they assist very materially in bracing the posts against lateral movement when the strain comes upon them from either side and they also serve for supports for the gib of the crane when it is in its vertical position, and one of them also forms a support for it when it is laid in a horizontal position for driving into a barn or under a shed or cover which is too low to permit of the passage of the crane in its vertical position.

The gib of the crane is provided with two pulleys 12 and 13, one at each end, over which passes a rope 14 which passes down through a block 15 secured to the bottom piece and to the bottom board 2; said block being provided with a pulley 16, from whence the rope passes to a windlass 17 at the end of the rack. The windlass is journaled in the outer ends of two bars 18 and 19 which are secured parallel with each other by means of the cross-

pieces 20 and 21. The inner end of each of the side pieces of this frame is notched and fits upon a cross-piece 22 secured to the bottom of the rack. The cross-piece 20 of the frame is secured to the under side of the bars just a slight distance from the ends, so that when the frame is placed between the cross-pieces 23 and 24 at the end of the rack, the cross-piece 20 will engage with the cross-piece 24 of the rack, and prevent the outward movement of the frame. A button 25 is secured to the cross-piece 23 just above one of the side pieces of the frame, which as soon as the frame is in place, is turned down and engages with the side piece and prevents the upward movement of the frame. When it is desired to remove the frame from the rack, the button is turned to one side which will permit of the frame being lifted until the cross-piece 20 will pass up over the cross-piece 24 and the rack can be drawn out between the two cross-pieces 23 and 24.

I prefer to place the frame slightly at an angle to the rack, so that it will not interfere with the ladder 26 at the end of the rack. To do this, the end of one of the bars of the frame is notched a trifle deeper than the other, and a pin or bolt 27 is passed down through the cross-piece at the bottom of the rack. This construction also permits of one of the side bars of the frame resting against one of the main pieces of the rack, and the other piece resting against and being secured by the ladder, thus making a very secure attachment for preventing the lateral movement of the rack when being operated.

In operation, the uprights 3, are secured in place in the rack, and the crane is then placed between them with its standard resting in the notches upon the facing sides of the blocks 10 and 11. The frame is inserted at the end of the rack, and the rope passed over the pulleys with one end secured to the windlass or roller, and the other end is passed down from the longer end of the gib. In handling lighter loads the rope may be used single, but for heavier loads, I prefer to use a double rope, that is, the rope is passed down over the pulley and passed through a sheave or loose pulley and back up to the end of the gib and there secured. The hook for lifting the load is secured to the loose pulley of the rope, and consequently a greater purchase can be had upon the load than with a single rope.

It is evident that my invention may be used for loading stone, barrels or material, or other heavy articles. In using it for the lighter loads, as for hauling fodder, it is only necessary to tie the rack to the bolster of the wagon, to prevent the rack from tilting over when the load is being lifted up at one side of the rack, but in lifting heavier loads, it is preferable to use a brace 28 which may be pivotally secured to the under side of one of the side pieces of the rack, or to one of the cross-pieces, and the other end may be carried by a stirrup 29, so that when not in use it can be hooked up un-

derneath the side board of the rack out of the way. But when it is to be used, the stirrup is slipped over the free end of the brace which is then allowed to swing down and rest upon the ground. It will be seen that when the gib of the crane is swung out over that side of the rack, and the load is being lifted, the extra weight of the load will be taken up and supported by this brace, and the rack will be prevented from being tilted over to that side. By locating the crane substantially midway of the rack, it will be seen that the load can be taken on or off of each end of the rack, and as the gib will extend over each side of the rack, the load can be taken on or removed from either side of the rack. As one of the pulleys in the gib is to the rear of the post or standard, the rope will pass freely over that pulley and the one at the bottom of the rack, even if the derrick is swung around from one end of the rack to the other, as the location of the upper pulley will prevent the rope from rubbing against the post or other part of the device to any great extent.

It is evident that my improved crane and windlass can be entirely made of metal, or it may be made of wood and properly secured to the bed by any ordinary mechanic and at a very trifling cost. The device is very light and can be easily and quickly applied to or taken from the bed, and will occupy but little space when stored away.

As above described the man at the windlass can lift a very heavy load by means of the leverage which is secured by the mechanism shown and described, but if it is desired, the frame at the end of the rack can be removed, and a horse hitched to the end of the rope and thus the load be lifted on to the rack very quickly and easily. I prefer to locate the frame at the rear of the rack, so as to be entirely out of the way of the team at the front of the wagon, and also permit of the windlass being operated by an assistant at the rear end of the wagon, or of a horse being hitched to the rope and driven away from the rack.

Having thus described my invention, I claim—

1. The combination with a bed or rack of a wagon, of a board secured thereto substantially mid-way of its length, two posts secured to the board, and adapted to be secured to the rack, two blocks secured to the upper portion of the posts, upon opposite sides thereof, and one above the other, the facing sides of said blocks being each provided with a notch, a crane between the blocks at the upper portion of the posts, and pivotally and detachably secured at its lower end in the board at the bottom of the rack, and a windlass at one end of the rack, substantially as set forth.

2. The combination with the bed or rack of a wagon, of a crane detachably secured thereto substantially mid-way of its length, a cross piece secured to the main rails of the bed, near one end, a frame projecting through the end of the bed, the inner ends of the side

pieces of which are each slotted and fit upon the cross piece, and the outer ends of said side pieces are provided with cross pieces, and a windlass journaled in the outer end of said
5 pieces, substantially as set forth.

3. An apparatus comprising a bed or rack of a wagon, of a crane detachably secured thereto substantially midway of its length, a cross piece near one end of the rack, two
10 cross pieces at the end of the rack, the upper one of which is provided with a button, a frame, the inner ends of the side pieces of which are each slotted and fit upon the first-

mentioned cross piece, a cross piece adjacent to said slotted ends, and adapted to engage 15 with the lower cross piece at the end of the frame, two cross pieces at the outer portion of said pieces, and a roller in the outer end of said side pieces, substantially as set forth.

In testimony whereof I affix my signature in 20 presence of two witnesses.

CHARLES H. KING.

Witnesses:

G. O. MARSH,
WM. NEWTON.