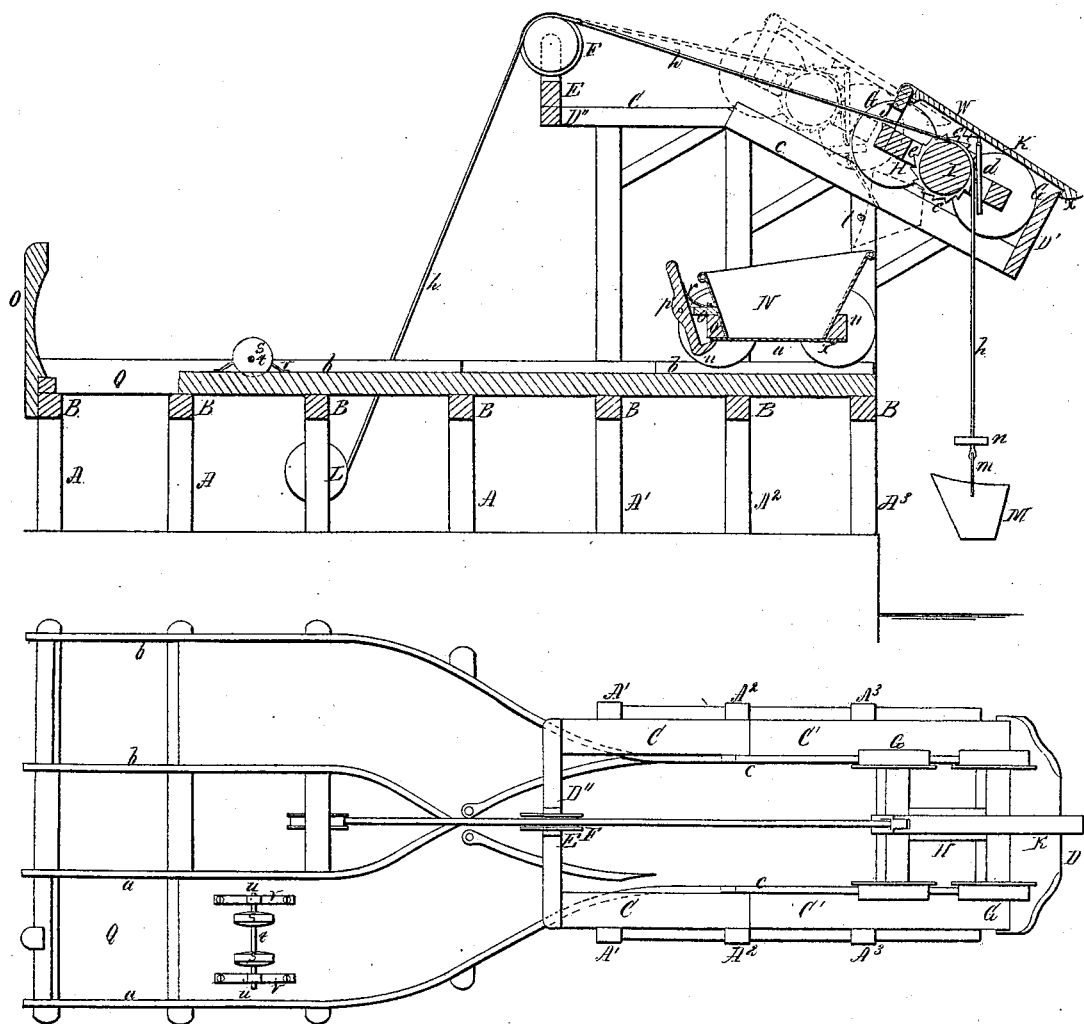


*Manderson & Favinger,*

*Unloading Vessels.*

*N<sup>o</sup> 52,001.*

*Patented Jan. 9, 1866.*



*Witnesses*  
*Wm. H. H. H. H.*  
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*Inventors:*  
*Manderson and Favinger*  
*by Wm. H. H. H.*  
*Wm. H. H. H.*  
*per Charles E. H.*

# UNITED STATES PATENT OFFICE.

JAMES MANDERSON AND SAML. FAVINGER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO JAS. MANDERSON, OF SAME PLACE.

## APPARATUS FOR REMOVING CARGOES OF VESSELS.

Specification forming part of Letters Patent No. 52,001, dated January 9, 1866.

*To all whom it may concern:*

Be it known that we, JAMES MANDERSON and SAMUEL FAVINGER, both of Philadelphia, Pennsylvania, have invented certain Apparatus for Removing the Cargoes of Vessels; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention consists of certain apparatus, fully described hereinafter, for rapidly removing cargoes of coal and other material from vessels.

In order to enable others to make and use our invention, we will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of our improved apparatus for removing the cargoes of vessels, and Fig. 2 a plan view.

Similar letters refer to similar parts throughout the several views.

On the uprights A A A A rest the cross-beams B B B, and to the latter are secured rails *a a* and *b b*, which form two parallel tracks, and which converge so as to form a single track, the latter resting on cross-beams B' secured to uprights A', A<sup>2</sup>, and A<sup>3</sup>, suitable switches being provided, by means of which cars on the single track can be made to pass onto either of the other tracks. The uprights A', A<sup>2</sup>, and A<sup>3</sup> extend above the track, and are connected together at the top by beams C C and C' C', the latter being inclined, as shown in the drawings, and having at their lower ends a plate, D', the upper edge of which is rounded or beveled on the inside, as shown in the drawings. Between the uprights A<sup>3</sup>, and below the beams C' C', extends a rod, *l*, for a purpose described hereinafter. The ends of the beams C C are connected together by a cross-piece, D'', and to the center of the latter is attached a frame, E, in which turns a grooved pulley, F.

To the beams C' C' are secured the rail *c*, to which are adapted the wheels G of the truck W, the forward movement of the latter being limited by the plate D.

Between the axles of the truck extends a

bar, H, the central portion of which is removed to admit a grooved pulley, I, the edges of the latter being cut away so as to form a series of ratchet-like projections, *e*, as shown in Fig. 1.

To the rear axle of the truck is secured a frame, J, to the top of which is jointed one end of a lever, K, the latter projecting over and beyond the front end of the truck, and having an inclined end with an abrupt shoulder, *x*.

On the under side of the lever K, directly over the edges of the pulley I, are two projections, *i i*, in front of which a rod, *d*, is hung loosely, the rod projecting through the slot in the bar H of the truck. A belt, *h*, passes over the pulley I, through the frame J, over the pulley F and beneath a drum, L, the outer end of the strap being attached to the handle *m* of a bucket, M. On the strap, above the handle of the bucket, is secured a circular plate, *n*, for a purpose described hereinafter.

N is a car or truck, which is provided with the usual flange-wheels *n' n'*, the latter being adapted to the rails *a* and *b*. From the rear end of the car projects a slotted bar, *o*, to which is jointed a lever, *p*, the latter terminating in a hook-like projection, upon which rests one edge of a gate, *w*, at the bottom of the car, the other edge being hinged to the car at *x'*, near the rear of the same. A spring, *r*, bears against the lever *p* and maintains the hooked end of the latter in contact with the gate.

Between the rails *a a*, near the rear end of the apparatus, are secured flat springs *v v*, and in bearings attached to the latter turns a shaft, *t*, on which are two pulleys, *s s*.

To the center of the cross-beam B of the frame-work is attached an upright bar, O, that portion of the track between the rails and directly in front of the bar being cut away, so that there shall be an opening, Q, in front of the upright, for a purpose described hereinafter.

When it is desired to use the apparatus for unloading a vessel the different parts are first brought to the position shown in the drawings. The bucket M is then lowered into the vessel, where it is filled with the grain, coal, or other material to be removed, after which it is raised by winding the strap *h* on the drum L. When the bucket is raised to such a height that the plate *n* strikes the lower end of the rod *d* the

lever K is elevated, and the shoulder *x* lifted from contact with the edge of the plate D', the upward motion of the bucket being discontinued while the truck is drawn up the inclined rails. As the truck moves back the upper edge of the bucket is brought beneath and in contact with the rod *l*, the farther movement of the truck causing the bucket to be tilted, as seen in red lines, Fig. 1, so that the contents shall be discharged into the car N below. As the strap is slackened and the bucket begins to descend the plate *n* moves from contact with the rod *d*, and the latter, with the lever K, descends a short distance, when the projections *i* engage with the ratchet *e* at the side of the pulley *i*, the revolution of the latter and descent of the bucket being thus arrested. As the truck moves forward the end of the lever K is brought in contact with the beveled edge of the plate D, the lever being raised until its shoulder *x* passes beyond and engages with the end of the plate, the backward movement of the truck being thus prevented, while the projections *i* are raised from contact with the projections *e*, so that the pulley I can revolve and the bucket M descend to the vessel, to be filled and raised as before. When the car N is full it is moved back onto the rails *a a*, another car being brought immediately from the rails *bb* to the position occupied by the first. When the latter has reached the end of the track the upper end of the lever *p* is brought in contact with the post O, the lower end of the lever being moved outward, so that its shoulder shall

pass from contact with the edge of the gate *w* and allow the latter to fall and the contents of the car to be discharged into any suitable receptacle placed beneath to receive them. As the car passes over the pulleys *s s*, when it is moved back toward its first position, the gate *w* is gradually brought, by its contact with the pulleys, against the bottom of the car, the edge of the gate striking the inclined end of the lever *p*, and forcing the latter out until it passes the shoulder, when the lever is forced back by the spring *v*, the shoulder being introduced beneath the gate, which is thus again secured firmly against the bottom of the car.

We claim as our invention, and desire to secure by Letters Patent—

1. The bucket M and belt *h*, combined with the truck W and bar *l*, the whole being arranged and operating substantially as and for the purpose herein set forth.

2. The combination of the truck W, with its lever K and pulley I, the inclined rails *c*, plate D', belt *h*, and bucket M, the whole being arranged and operating substantially as and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

J. MANDERSON.  
SAMUEL FAVINGER.

Witnesses:

A. H. SHOEMAKER,  
LAURETTA BERTON.