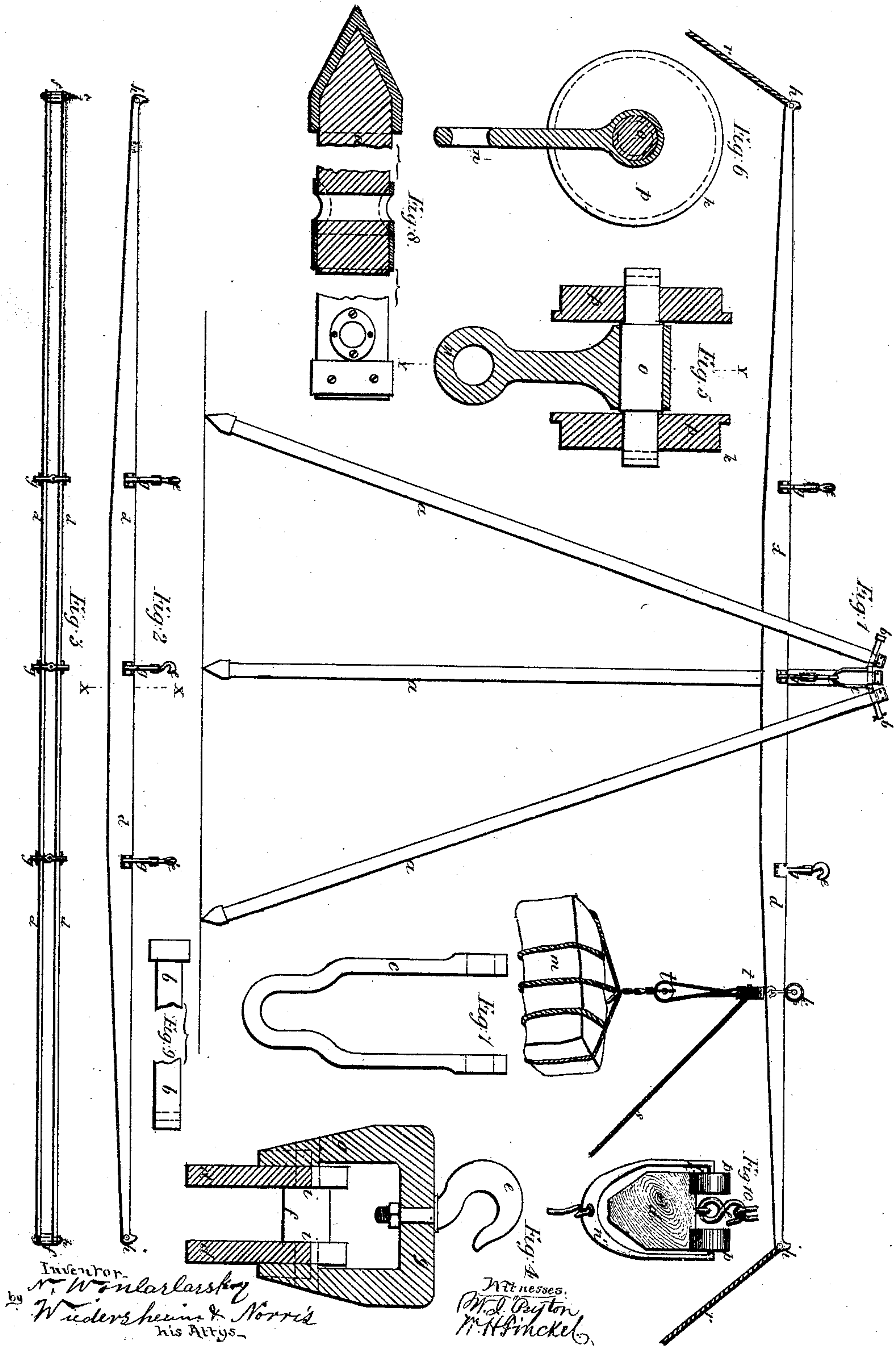


N. Wondararsky,

Elevator.

No. 109,988.

Patented Dec. 6. 1870.



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NICOLAUS WONLARLARSKY, OF ST. PETERSBURG, RUSSIA.

Letters Patent No. 109,988, dated December 6, 1870.

IMPROVEMENT IN HOISTING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, NICOLAUS WONLARLARSKY, of St. Petersburg, in the Empire of Russia, have invented "a new or Improved Apparatus for Raising, Lowering, and Transporting or Removing Goods;" and do hereby declare that the following description, taken in connection with the accompanying drawing hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent, that is to say—

This invention has reference to a new or improved portable apparatus of simple and inexpensive construction, principally intended for loading and unloading goods of moderate weight, such as are generally moved by manual labor, the employment of cranes being usually limited to goods of not less than ten hundred weight.

The said apparatus consists mainly of a beam suspended at any desired height from a tripod, upon which beam is situated a small carriage, with lifting tackle for raising and conveying the goods, the beam being steadied while in use by means of guy-ropes or chains. The beam is by preference provided with three suspending hooks fixed at different points of its length, by either of which it is suspended either directly or with the intervention of lifting tackle from the tripod, and is held in a more or less inclined position by the before-mentioned guy-ropes or chains secured in any suitable manner to the ground.

The beam is inclined from the place where the goods are to be unloaded to the point where they are to be deposited, so that, on the load being suspended from the carriage, this will, by virtue of the gravity of the load, of itself run down the inclined beam to the end, where the goods are to be unloaded, and thus the expenditure of power for removing the goods from the one point to the other will be obviated.

The raising of the load at the first-named point, and the lowering of the same at the last-named point, are effected by means of the before-mentioned lifting-tackle, the hauling end of the rope or chain of which is allowed to slip through the hand of the operator while the load suspended from the carriage is passing with the same along the beam. After depositing the load the carriage is drawn back to the loading end of the beam by the said hauling end of the lifting-tackle.

The construction of the before-described portable apparatus for loading and unloading will be readily understood upon reference to the accompanying drawing, in which similar parts are indicated by similar letters of reference in each of the figures.

Figure 1 shows a side view of the apparatus.

Figure 2 shows a side view of the beam detached.

Figure 3 shows a plan of the same.

Figure 4 shows an enlarged transverse section of the same through X X, fig. 2.

Figure 5 shows a cross-section through the carriage *k*.

Figure 6 shows a section through the same on the line Y Y, fig. 5.

Figure 7 shows an enlarged view of the suspending loop *c*.

Figure 8 shows a part enlarged section and elevation of one of the poles *a*.

Figure 9 shows an enlarged view of the connecting-bolt *b*, which is bent to the required curvature, as shown in fig. 1.

Figure 10 shows a transverse section of a solid form of beam, with modified construction of the carriage *k*.

a a a is the tripod or support, composed of three poles of wood or metal, either solid or tubular, connected together at the upper ends in such manner by means of a bolt *b* passing through the same that the poles may be freely moved nearer together or further apart or even laid closely side by side for convenience of transport.

The bolt *b* also carries the loop *c* to which the beam *d d* is hung, either directly, as shown in the drawing, or with the intervention of a differential pulley by means of one of the three hooks *e e e*.

The beam *d* is constructed either of wood or preferably of iron or steel, and is composed of two flat bars, as shown in figs. 1 to 4, which are secured together at a certain distance apart by means of bolts or rivets *h* and distance pieces *f* at the ends, and by means of the yoke *g* carrying the suspension hooks *e*.

Upon the upper edges of these bars runs the carriage *k*, figs. 1, 5, and 6, from the eye *n* of which is suspended the load *m*, by means of the lifting-tackle *l* with hauling-rope or chain *s*.

The carriage may either have only two wheels *p*, as shown, or it may be provided with four wheels.

The bridge-pieces *g* must be of such a height that the carriage can pass through them on its way from one end of the beam to the other.

The lifting-tackle *l*, for raising, lowering, and suspending the load, is hooked into the eye *n*, which is suspended loosely upon the axle *o* of the carriage.

By suspending the beam *d* on one of the two side hooks *e* instead of the middle one, it may be made to overhang a considerable space, such as might be necessary for loading and unloading a barge, and it may also in that case be used as a lever.

As before stated, the beam *d* may also be of one solid piece of wood or other suitable material, as shown in the section at fig. 10. In this case the yoke *g* is dispensed with, and the suspending hooks *e* are fixed directly in the middle of the beam.

The wheels *p* of the carriage *k* are in this case con-

needed by the stirrups *n'* from which the lifting-tackle is suspended. By this arrangement it will be seen that the carriage *k* can, as in the previous arrangement, pass the hooks *e* on its way along the beam.

It will be self-understood that the strength of the beam and other parts will have to be made in due proportion to the load the apparatus is intended to carry, and their form may also be varied according to circumstances without departing from the nature of my invention.

If the apparatus requires to be frequently shifted from one locality to another, the suspension of the beam *d* may be advantageously effected by means of the well-known "Weston's differential pulley," with endless-hauling chain which is interposed between the suspension hooks *e* and the loop *c* of the support, so as to enable the beam to be raised and lowered, such differential pulley being of well-known construction, and forming no part of my present invention, it is not shown in the drawing.

The mode of operation with the apparatus is as follows:

The guy-ropes or chains *r r* are secured to a fixed object in such a manner that they hold the beam in a position inclining from the place where the goods are situated to the point where they are to be deposited; as, for instance, with the one end overhanging a railway wagon and the other end over the platform. The load is then suspended to the lower hook of the lifting-tackle, is raised by the hauling-rope *s*, after which, by letting the said rope slide through his hand, the operator allows the carriage with its load, by virtue of its own gravity, to run down the inclined beam to the end, where the load is to be deposited. Arrived at such point, the load is lowered by the tackle, and, after unhooking the latter, the carriage with the tackle is drawn back to the other end of the beam, and the operation is repeated. In order to take the drag produced by the weight of the load off the operator's hands while the carriage is passing along the beam, the load may, when raised to the requisite height, be hooked on to a short independent length of rope or chain suspended from the carriage or upper pulley of the tackle, from which it is unhooked when arrived at the other end of the beam.

By placing several of the before-described apparatus end to end, it will be evident that the loads may be transported considerable distances by trans-

mitting the load when arrived at the end of the beam of one apparatus to the carriage on the contiguous end of the beam to the next apparatus.

The advantages to be derived from the use of the before-described apparatus are—

First, its simple and inexpensive construction.

Second, the ease with which it may be transported from place to place.

Third, the rapidity with which goods may be loaded or unloaded by means thereof.

Fourth, the great saving of manual labor effected by its use.

It is therefore anticipated that this apparatus will meet with considerable applications at railway stations, docks, landing places, factories, and for agricultural purposes, &c., for loading, unloading, and transporting goods of medium weight.

Having thus described the nature of my invention and in what manner the same is to be performed, I wish it to be understood that I am aware of the existence of traveling cranes, consisting of a horizontal beam supported at each end by traveling uprights framed rigidly with the said beam, and having a carriage, which is moved along the beam by means of chains passing over guide-pulleys down to winches on each side of the supports, and I therefore in no way claim such an arrangement; but

What I claim is—

1. The beam *d*, suspended from a tripod, *a*, guy-ropes *r*, carriage *k*, and lifting-tackle *t s*, substantially as and for the purpose set forth.

2. The beam *d*, formed with two cheeks upon the bar a certain distance apart, connected by the yoke *g* with suspension hooks *e*, through which the carriage *k* passes, substantially as set forth.

3. In combination with solid beam suspended from a tripod of a carriage, the wheels of which are connected by a stirrup partly encompassing the beam, substantially as and for the purpose set forth.

4. The apparatus for lowering, hoisting, and transporting, substantially as herein shown and described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses this twenty-ninth day of August, 1870.

NICOLAUS WONLARSKY.

Witnesses:

JOHN SCARAMANGER,

JOHN VENTURO.