

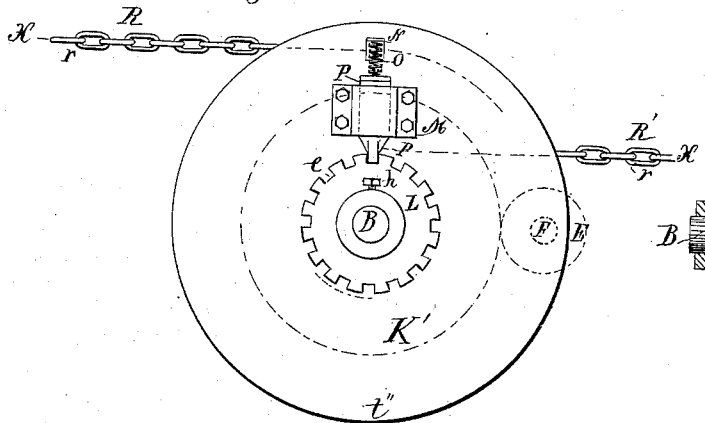
(No Model.)

N. E. GREEN.  
ADJUSTING DEVICE FOR HOISTING CABLES.

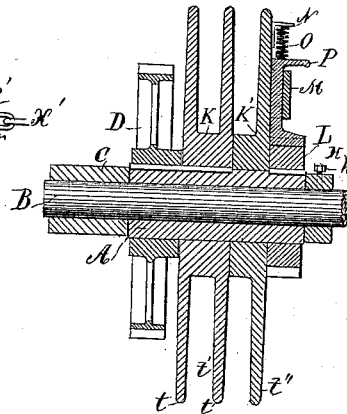
No. 422,933.

Patented Mar. 11, 1890.

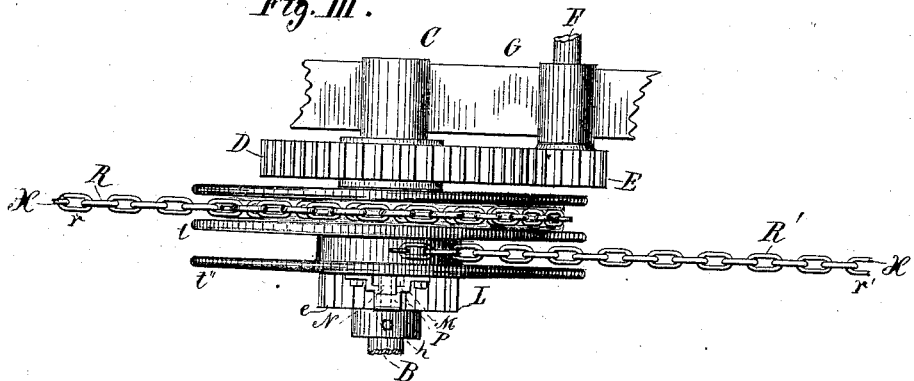
*Fig. I.*



*Fig. II.*



*Fig. III.*



Witnesses  
A. H. Opsahl.  
Emma F. Elmore,

Inventor  
Nelson E. Green  
By his Attorney  
Jas. F. Williamson

# UNITED STATES PATENT OFFICE.

NELSON E. GREEN, OF MINNEAPOLIS, MINNESOTA.

## ADJUSTING DEVICE FOR HOISTING-CABLES.

SPECIFICATION forming part of Letters Patent No. 422,933, dated March 11, 1890.

Application filed February 27, 1888. Serial No. 265,458. (No model.)

*To all whom it may concern:*

Be it known that I, NELSON E. GREEN, a citizen of the United States, and a resident of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented a certain new and useful Length-Adjusting Device for Hoisting-Cables, of which the following is a specification, reference being had to the accompanying drawings.

10 My invention relates to hoisting mechanism.

It was designed more especially for use in connection with the loading and unloading mechanism described in my application for Letters Patent filed in the United States Patent Office of date January 26, 1887, under Serial No. 225,558.

15 In my working-machine embodying the inventions set forth in that application a pair of hoisting-drums are mounted on a common shaft, and one hoisting-bucket is rising to its emptying position when the other is descending to its filling position. The two cables are kept of such relative length that when one bucket has been drawn to its limit in its emptying position the other bucket will be in its filling position at the working-level. In excavating trenches for sewers and similar work, for which the machine was especially designed, the level from which the dirt is to be taken varies as the work progresses. A corresponding change must be made in the length of the cables for every material change in the working-level.

25 The object of my invention is to provide a simple device for speedily effecting this adjustment; and the invention consists in the construction hereinafter fully described, and particularly pointed out in the claims.

30 In the drawings, like letters referring to like parts, Figure I is a side elevation, Fig. II a longitudinal vertical section, and Fig. III a plan, of my invention.

A is a suitable hoisting-shaft driven in any suitable way from some suitable source of power. As shown, this shaft is in the form of a sleeve and is mounted on a fixed spindle B. This spindle is held in suitable supports C (one only being shown) on the main frame, a part of which is shown at G.

35 D is a gear-wheel keyed to the shaft A and engaging with the pinion E on the shaft F. The shaft F is coupled directly or indirectly

to the source of power. (Not shown.) The shaft A is held from longitudinal displacement on the spindle B by the support C at one end and a collar H at the other, which is mounted upon the spindle and removably secured thereto by a set-screw *h*.

To the shaft A is keyed a winding-drum K, and loosely mounted on the same shaft is a winding-drum K'. Keyed to the shaft A, and bearing against the outer face of the hub of K', is a collar L, provided with notches *l* on its periphery. On the outer face of the drum K', at some point above the collar L, is attached a bracket or keeper M, and at a point in line therewith and nearer to the periphery of the drum is attached an angle-iron N. In the keeper M is placed a sliding locking-bar P, the lower end of which is adapted to engage with the notches *l*, and the upper end of which is provided with a suitable handle or finger-piece.

40 Attached to the under side of the angle-iron N, and bearing against the top of the locking-bar P, is a resistance-spring Q, adapted to keep the bar in its locking position. It is evident that by withdrawing the locking-bar P from the notched collar L the drum K' may be unlocked from the shaft A.

45 On the drum K K' are wound hoisting-cables R R' of sufficient length to reach to the lowermost level from which any load is to be lifted. This having been done, the adjustment of their relative length for any given level is readily effected. All that is necessary is to turn the shaft A until the cable R is wound up to any desired limit on the drum K—say until the link *r* reaches the point marked X. Then unlock the drum K' from the shaft A and turn it on said shaft, unwinding the cable R until it reaches the desired point—say until the link *r'* reaches the point marked X'. Then relock the drum K' to the collar L. Thereafter whenever the link *r* of the cable R is at X the link *r'* of the cable R' will be at X'. It is evident that by making the proper adjustments from time to time the end of the cable R' may be made to reach to any desired level when the cable R is wound up to its limit. These adjustments are very quickly made.

In the machine hereinbefore referred to, in order to adapt it to any given level, all that

is necessary is to draw the bucket attached to the cable R to its emptying position and turn the drum K' on the shaft A until the bucket attached to R' is in its filling position.

- 5 It should be noted that the common shaft on which the hoisting-drums are mounted is a reversible shaft. It is either driven from a reversing-engine or is coupled indirectly through suitable gearing to the source of  
10 power in such a way that it can be reversed.

The drums K K' are of sheave-like form adapted to receive the cables between their respective flanges—one layer of the cable directly on top of the other. As shown, the  
15 drum K is provided with a pair of flanges  $tt'$ , cast integral with its hub, while the drum K' has but a single flange  $t''$ , the flange  $t'$  serving also to co-operate with  $t''$  for holding the cable R' in its proper position.

- 20 It will be understood, of course, that this omission of the inner flange from the drum K' is a mere matter of economy and convenience when the two drums are arranged side by side, as shown. They might equally well  
25 be placed on a common shaft at some distance apart, and in that case each drum would have to be provided with a pair of flanges.

It will be further understood that the locking device for detachably connecting the  
30 loosely-mounted hoisting-drum K' to the shaft A need not necessarily be of the exact construction shown. It may be varied without departing from the principle of the invention. For example, the notches or projecting lugs might be on the face of the drum  
35 adjacent to the shaft, and the sliding lock might be mounted on the retaining-collar.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination, with a reversible shaft, of a pair of hoisting-drums, one splined to said shaft and the other loosely mounted thereon, a locking device for detachably securing the loosely-mounted drum to the shaft, 45 and independent hoisting-cables carried by said drums and wound in reverse directions thereon, substantially as and for the purpose specified.

2. The combination, with the fixed supporting-spindle B, of the hollow reversible shaft A, loosely mounted on said spindle, the hoisting-drum K, fixed to said shaft and provided with a hoisting-cable R, the hoisting-drum K', loosely mounted on said shaft and 55 provided with the hoisting-cable R', said cables being wound in opposite directions around their respective drums, the collar L, fixed to said shaft and provided with the notches  $l$ , the keeper M, fixed to said drum K', and the spring-pressed sliding lock P, held in said keeper and adapted to detachably connect said collar and loosely-mounted drum, substantially as described.

3. The combination, with a reversible shaft, 65 of a pair of hoisting-drums, one rigidly secured to the shaft and the other loosely mounted thereon, a collar rigidly secured to said shaft adjacent to the loosely-mounted drum provided with notches on its periphery, 70 a spring-actuated locking device adapted to detachably connect said collar and loosely-mounted drum, and independent hoisting-cables mounted on said drums and wound in opposite directions about the same, substantially as described. 75

NELSON E. GREEN.

In presence of—

JAS. F. WILLIAMSON,  
EMMA F. ELLMORE.