

(No Model.)

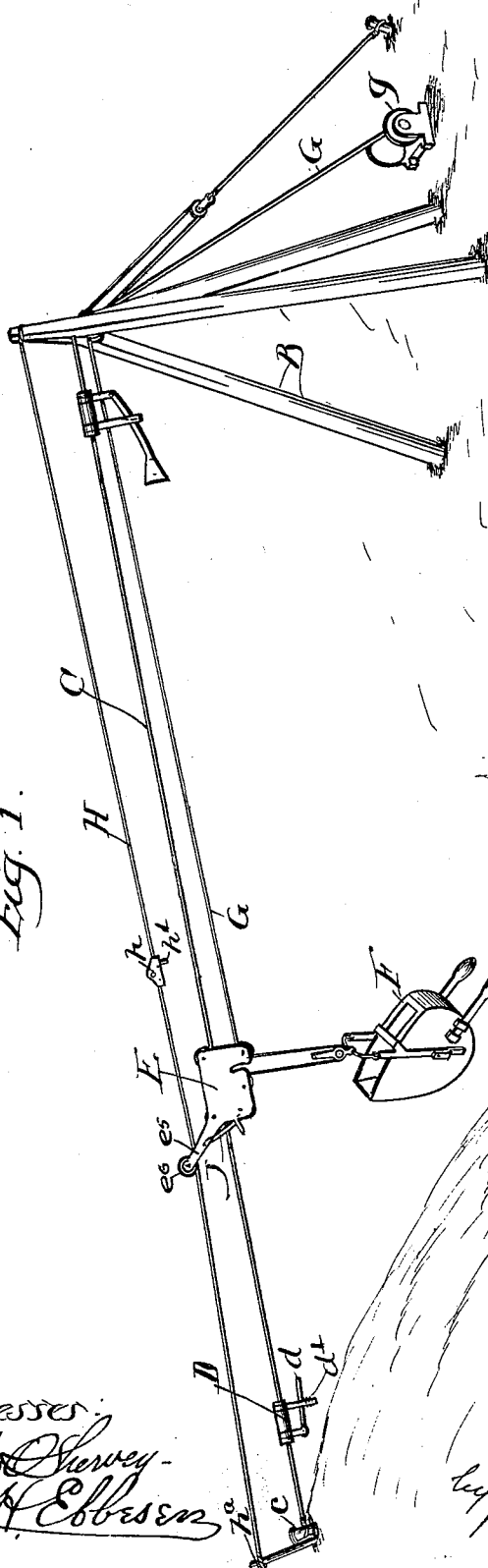
D. I. CALHOUN.

2 Sheets—Sheet 1.

HOISTING AND CONVEYING MACHINE.

No. 513,082.

Patented Jan. 23, 1894.



Witnesses:
Charles Sherway -
A. J. H. Ebbesen

Inventor:
D. Irving Calhoun
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(No Model.)

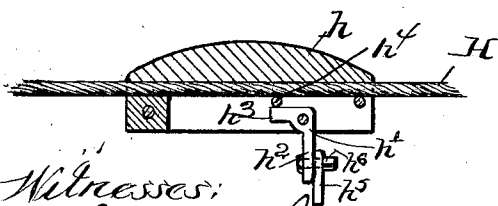
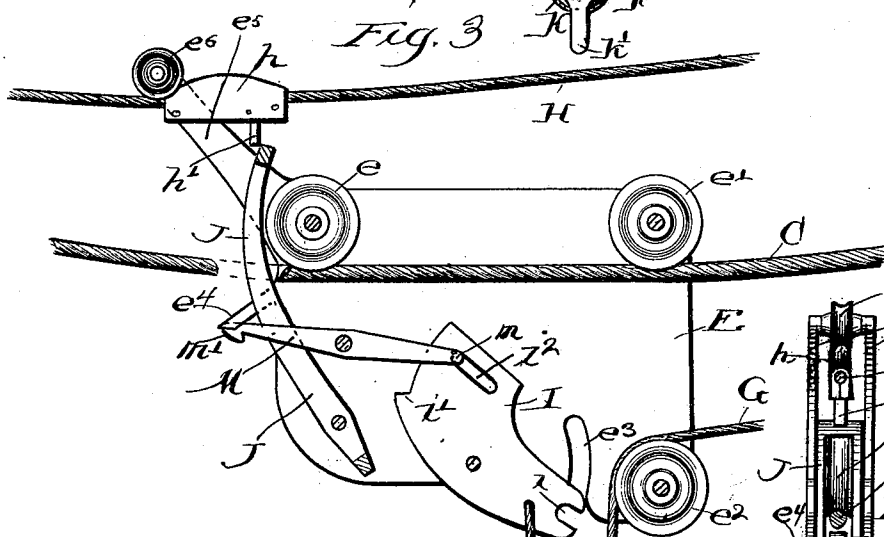
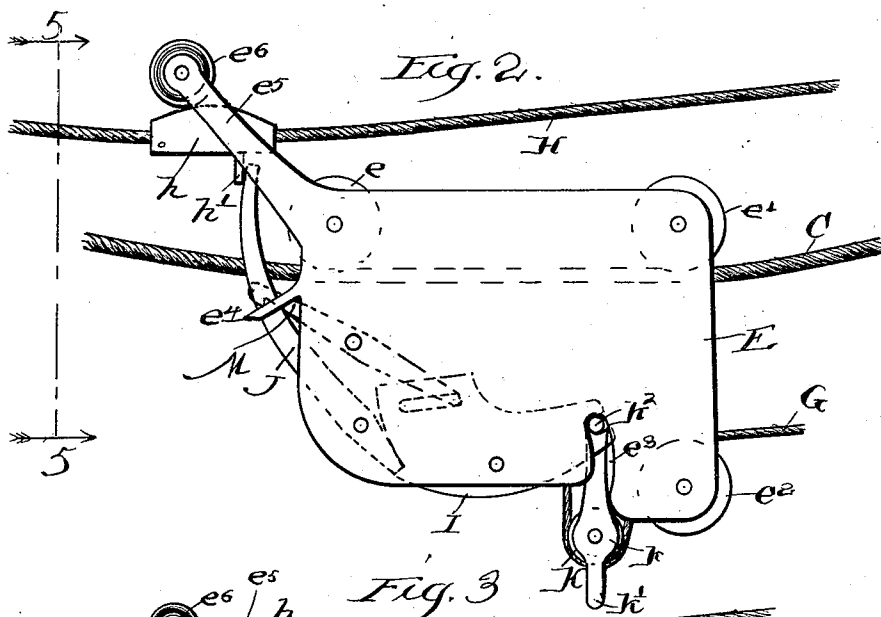
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2 Sheets—Sheet 2.

HOISTING AND CONVEYING MACHINE.

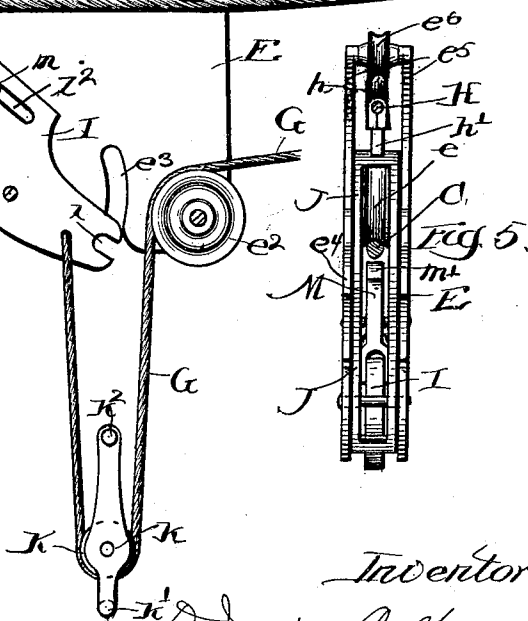
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UNITED STATES PATENT OFFICE.

DANIEL IRVING CALHOUN, OF CHICAGO, ILLINOIS, ASSIGNOR TO CLARA S. CALHOUN, OF SAME PLACE.

HOISTING AND CONVEYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 513,082, dated January 23, 1894.

Application filed June 5, 1893. Serial No. 476,588. (No model.)

To all whom it may concern:

Be it known that I, DANIEL IRVING CALHOUN, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hoisting and Conveying Machines, of which the following is a specification.

My invention relates to certain improvements in hoisting and conveying machines, said improvements being designed with special reference to perfecting a hoisting and conveying machine for which a patent was issued to me upon August 28, 1883, said patent being numbered 283,964. I have been using the machine described in said prior patent principally for excavating dirt and loading the same upon cars or wagons, and also for loading coal, crushed stone and similar materials for transportation. Said patent shows a car adapted to run upon a cable and to carry a scoop or bucket. Said car is provided with mechanism adapted to be tripped by a tripping device located at a predetermined point on the cable, and when so tripped to simultaneously engage with said device making the car stationary, and also to lower the scoop or bucket. In working this machine, the car remains stationary until the scoop or bucket returns to it with a load and then is automatically released to enable it to return in the direction whence it came.

The improvements of the present application will be more readily understood in connection with the drawings, in which—

Figure 1 is a general perspective of the complete apparatus. Fig. 2 is a side elevation of the traveling car. Fig. 3 is a similar elevation with the front plate removed and showing the parts in a slightly different position. Fig. 4 is a sectional detail of a tripping mechanism shown in Figs. 2 and 3; and Fig. 5 is an end view taken from the line 5—5, of Fig. 2, looking in the direction of the arrow 5.

Looking at Fig. 1, a bank of earth is seen at A, which it is desired to load upon wagons for removal. A tripod, B, composed of three stout posts is set up at a sufficient distance from the bank to enable a wagon to be driven between it and the latter; and a cable, C, is stretched from said tripod to a post, c, driven

in the top of the bank. Near this post at D, is a latch or locking device which will be hereinafter described. My former patent shows at this point (D) a device which operates both as a trip and a lock to engage with a carrier somewhat similar to the one shown at E in the drawings, and, in making its engagement therewith, to trip certain mechanism of the carrier to release a scoop or bucket therefrom. The scoop is here shown at F, and is suspended from a cable, G, running over a pulley in the carrier. This cable, G, also passes over a pulley attached to the tripod, and extends to a drum, g, by means of which the cable may be wound up to draw the carrier toward the tripod. Said tripod is of sufficient height to insure enough inclination of the cable to cause the carrier to run in the opposite direction of its own weight. In the operation of my former device, the carrier, E, was allowed to run down against the stop, D, which, engaging with the carrier, locked the latter in position and released the scoop. The latter was then drawn down the inclined side of the bank of the earth to the bottom thereof and loaded by drawing it up the side of said bank. In using the older device, I found that some time was wasted in getting the scoop from the stop, D, to the foot of the bank after the carrier was locked in position and ready for work, and it is the purpose of my present invention to provide means whereby said loss of time may be obviated, and also the work may be done with greater ease. I have accomplished this end by means of certain changes in the mechanisms, and by the provision of an intermediate tripping device adapted to release the scoop before the carrier reaches the locking stop, giving said scoop time to drop downward to the bottom of the bank, while the carrier continues onward to its stationary position in which it is ready for work in loading the scoop.

Looking again at the drawings for the preferred construction, it will be seen that I have provided an additional cable or wire, H, running parallel with the cable, C, and stretched between the tripod, B, and a stake, h^a, driven in the bank, A. The carrier, E, is shown enlarged in Figs. 2, 3 and 5, and consists of side plates spaced apart by suitable rods and bars

and provided at its top with two pulleys, e, e' , adapted to run upon the cable, C. Below this cable a plate, I, is pivoted near its middle portion, said plate having at one end a notch, i , and at the other a shoulder, i' . A lever, J, is pivoted adjacent to the shoulder, i' , and in position to engage with the said shoulder and lock it as seen in dotted lines in Fig. 2. A third pulley, e^2 , is journaled between the lower portions of the plates, and the cable, G, passes over this pulley and is fastened to the end of the plate, I, which contains the notch, i . Between the pulley, e^2 , and the plate, the cable, G, carries a pulley, K, journaled in a frame, k , extended downward in the form of an eye, k' , and extending upward to carry a cross-rod, k^2 . The scoop is hung from the eye, k' . Whenever the frame, K, is drawn upward by the cable, G, the cross-rod, k^2 , is forced into the notch, i , and passing upward through a slot, e^3 , carries that end of the plate upward, bringing the shoulder, i' , upon the opposite end down below the catch, J. Said catch engages with the shoulder i' , by its own weight and locks the plate in position until the catch is forced away from the shoulder by some tripping mechanism. A lever, M, is also pivoted between the plates and has at one end a pin, m confined in a slot, i^2 , in the plate, I, and at the other end a hook, m' . As the plate, I, oscillates upon its pivot, this hook, m' , is moved up or down, as the case may be, and projecting lips or tongues, e^4 , upon the side plates are arranged so that the hook passes between them when forced upward.

Upon the upper cable, H, is a plate, h , projecting above the cable with inclined sides, and carrying below the cable, a pivoted stop, h' , having one arm, h^2 , projecting downward and another h^3 projecting laterally to engage with a pin, h^4 , when the downward projection is pushed in one direction, but not when pushed in the other direction. This downward projection is intended to strike the upper end of the lever, J, as the carrier moves back and forth, tripping said lever when the carrier moves toward the bank, but tilting upward out of the way as the latter moves in the opposite direction. It is made adjustable by means of a downward extension, h^5 , clamped to it by means of a bolt and nut, h^6 .

To space the cables apart the proper distance, arms, e^5 , are extended upward from the side plates of the carrier, and carry between them a pulley, e^6 , adapted to run above the cable, H, and over the plate, h .

Fig. 2 shows the position of the parts as the pulley is passing over the plate, and Fig. 3 the position just after it has passed. The hump upon the top of the plate, h , is provided, so that as the pulley passes beyond said plate, it will allow the cable, H, to rise by its own tension and draw the downward projection of the stop, h' , away from the end of the lever, J, as seen in Fig. 3, to allow said lever to pass after it has been tripped.

The locking stop, D, has a pivoted lever, d ,

provided at its free end with an eye adapted to receive the hook, m' , and a spring, d' , is placed under said lever to force it upward, but to allow it to yield downward against a superior force.

The operation of the device is as follows: Starting with the carrier and scoop near the tripod, the cable, G, is given plenty of slack, allowing said carrier and scoop to run rapidly toward the bank, A. As soon as the plate, h , is reached, the lever, J, is tripped, releasing the scoop, which drops downward to the foot of the bank, while the carrier moves onward to the locking stop, D. In releasing the scoop, the plate, I, has been tilted into the position shown in Fig. 3, raising the right hand end of the lever, M, and lowering the hook upon the opposite end, so that when said hook reaches the lever, d , upon the locking stop, D, said lever, d , is crowded downward by the hook and snaps behind the latter by the force of the spring. This locks the carrier in position, and the mechanism is in proper position for loading the scoop. The cable, G, is then drawn toward the tripod, while the scoop is forced into the bank as it travels upward. When said scoop reaches the carrier, the frame upon which it hangs, is automatically locked to the carrier, and, at the same time, disengages the hook, m' , from the stop, D, allowing the carrier to travel toward the tripod. When the plate, h , is reached on the return the end of the lever, J, forces the stop, h' , out of its way easily without disturbing the mechanism of the carrier, and the latter passes onward to the point selected for unloading the scoop. When such point is reached it is unloaded in the same manner as described in my former patent.

I recognize that the specific devices described are not essential to the broad principle of my invention, and I, therefore, do not intend to limit myself except as clearly pointed out in the following claims.

I claim as new and desire to secure by Letters Patent—

1. The combination in a hoisting and conveying mechanism, of a suitably supported cable stretched between the loading and unloading points, a carrier adapted to run upon said cable, a locking device at the loading point, means upon the carrier for automatically engaging with said locking device when the carrier reaches the loading point, a pulley upon the carrier, a cable running from the unloading point over said pulley and suspending beyond the same a frame adapted to support a scoop, mechanism upon the carrier in position to engage with said frame when the latter is drawn to the carrier by the cable, suitable devices for automatically locking said frame to the carrier, and, at the same time, unlocking the carrier from the locking device at the loading point when the frame is pulled into engagement with said mechanism, and a tripping device located at some intermediate point between the loading and

unloading points and adapted to trip the mechanism upon the carrier upon the passage of the latter toward the loading point and thereby disengage the frame from said carrier before the latter reaches the locking device at the loading point and takes its position for loading; substantially as described.

2. The combination in a device of the class described, and with the cable C, its locking stop at the loading point, the carrier E, and

its working devices, of the cable H and intermediate stop carried thereby, a projecting arm fastened to the carrier E, and a roller upon said arm properly located to space the two cables apart; substantially as described. 15

D. IRVING CALHOUN.

Witnesses:

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N. A. ROGERS.