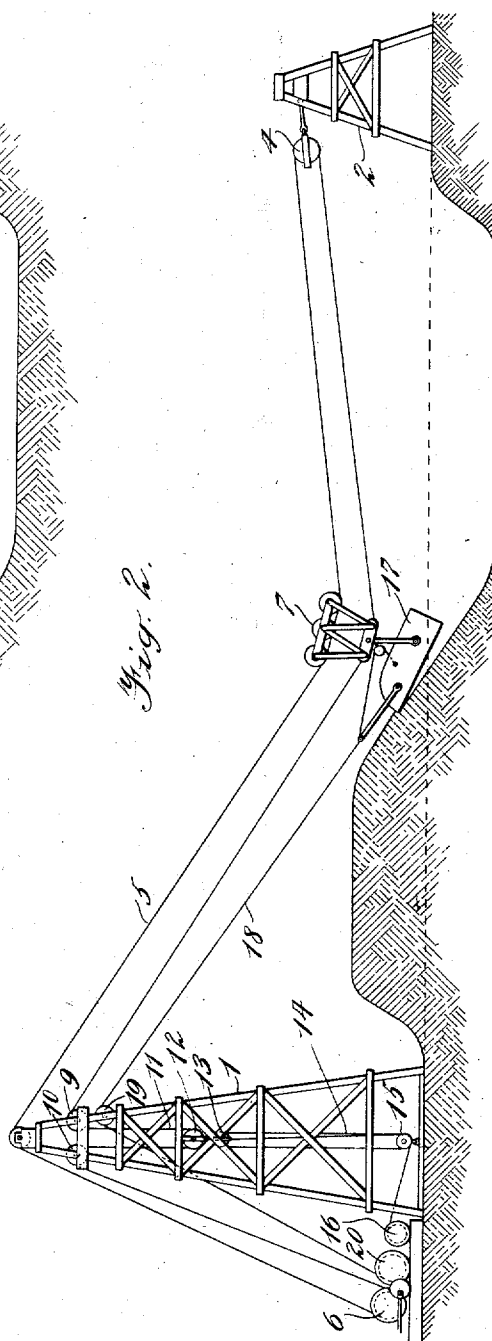
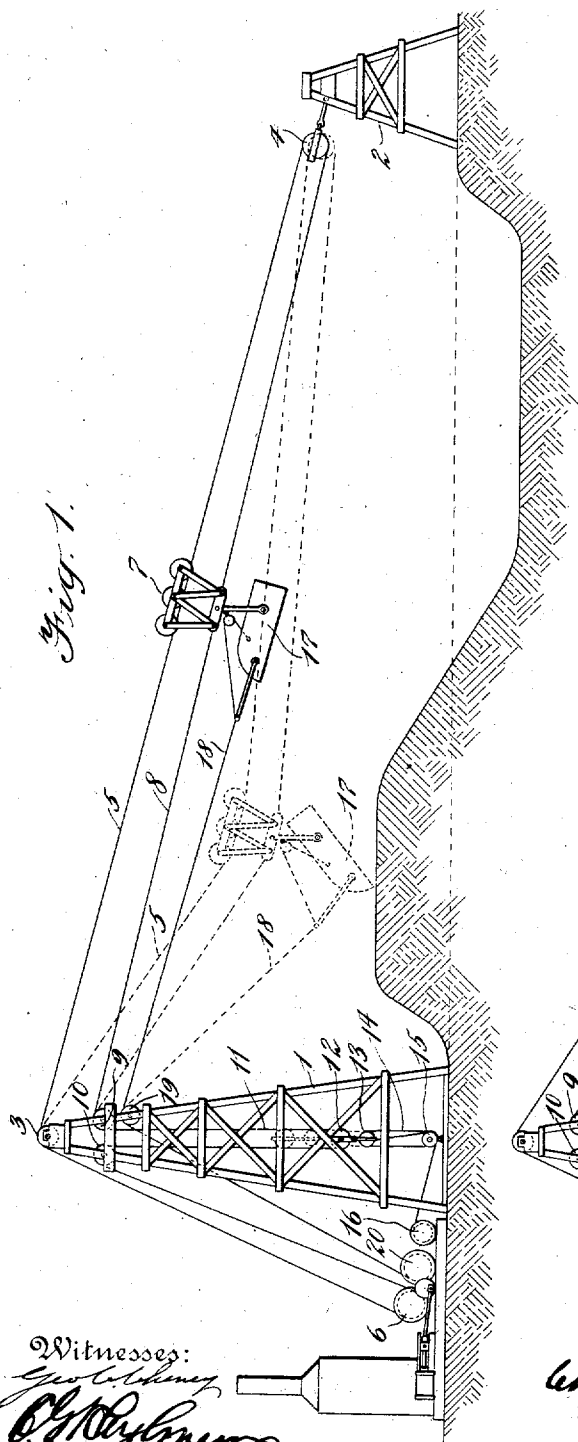


C. L. WACHTER.
CABLEWAY EXCAVATING SYSTEM.
APPLICATION FILED JAN. 9, 1911.

1,002,545.

Patented Sept. 5, 1911.



Witnesses:
Geo. C. L. Hines
A. H. Hines

Charles L. Wachter Inventor
By his Attorney *Gifford Bull*

UNITED STATES PATENT OFFICE.

CHARLES L. WACHTER, OF NEW YORK, N. Y., ASSIGNOR TO LIDGERWOOD MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CABLEWAY EXCAVATING SYSTEM.

1,002,545.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed January 9, 1911. Serial No. 601,528.

To all whom it may concern:

Be it known that I, CHARLES L. WACHTER, a citizen of the United States, and a resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Cableway Excavating Systems, of which the following is a specification.

My invention relates to new and useful improvements in cableway excavating systems, and more particularly to that character or type in which a digging bucket or scoop is suspended from a cableway, and may be lowered therefrom to be dragged into the material to be excavated, the bucket or scoop being movable lengthwise of the cableway in digging and carrying its load, and also when being moved to the point of excavation after having dumped its load.

The invention consists in the improvements to be fully described hereinafter and the novelty of which will be particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings to be taken as a part of this specification and wherein—

Figure 1 is a view in side elevation of an excavating system exemplifying an embodiment of my invention, the bucket being shown in conveying position. Fig. 2 is a view in side elevation showing the bucket lowered into digging position.

Referring to the drawings by characters of reference, 1 and 2 respectively designate the head and tail towers of a cableway system which may be of any suitable dimensions and design to suit the conditions under which they are employed, said towers being located with the material or space to be excavated between them. Preferably the head tower is made of a height greater than the tail tower for a purpose to be presently set forth.

Mounted on the head tower 1, is a rope guide consisting of a sheave 3, and a rope guide such as a block 4 is fixed to the tail tower, and passing over these rope guides is a main supporting cable 5, one end of which is wound on the drum 6 of a hauling engine at the foot of the head tower, the opposite end of the rope passing over the

guide 4 being carried back toward the head tower parallel to the part 5 and connected to a load carriage 7 arranged to travel on the part 5. This arrangement is such that a pull on the rope 5 by the drum 6 will serve to draw the carriage out toward the tail tower 2.

Connected to the carriage is an inhaul line 8 which passes from its point of connection to the carriage toward the head tower and rope guides 9, 10 thereon and down onto the drum 6, upon which it is wound reversely from the rope 5. It will be seen that the drum 6 upon being rotated in one direction will take up the line 5 to pull the carriage toward the tail tower during which operation the line 8 will be paid out; while the drum upon being rotated in the other direction will take up the line 8 to pull the carriage toward the head tower and the cable 5 will be paid out.

Means is provided for adjusting the elevation of the main cable 5 so as to regulate the height of the carriage relative to the material being excavated; this means preferably consists of a loop in one of the carriage hauling lines which loop is taken up or paid out to lengthen the main cable 5. The loop is preferably formed in the inhaul line 8, as at 11, between the rope guides 9, 10 and depends from said guides within the head tower 1, the closed end of the loop passing through a block 12, which is connected to one block 13, of a running connection 14, the other block 15 of which is anchored at the base of the head tower, the free end of the line of the running connection being wound upon a drum 16. By this arrangement the drum 16 can pull down or let out on the loop 11, so that the main cable will be drawn taut or slacked off as may be desired.

Suspended from the carriage by any suitable means is a scraper or excavating bucket 17 which may be of the type illustrated in the patent to page 758380, dated April 26, 1904, in which the bucket body is suspended by a bail pivotally connected thereto at a point behind the center of gravity of said bucket so that the latter automatically dumps when the digging end of the bucket is unsupported by a digging line as will be presently set forth.

Connected to the forward end of the bucket is a digging line 18 which passes over a guide sheave 19 on the head tower 1 and is then wound on a drum 20. The drums 6 and 20 may be in the same engine as, for instance, one of the type shown in the patent granted Miller and Dickinson August 20, 1901, Number 680934, but this is not essential as the drums may be operated in any manner desired, and need not be in a single engine structure.

When the system is to be operated, the parts are installed in substantially the arrangement shown and described, it being premised that the carriage and bucket are adjacent the head tower and that the digging is to take place from the tail tower toward the head tower. The drums 6 and 20 being held stationary, the drum 16 is operated to take up the loop 11, and thereby pulls the main cable 5 taut to raise the carriage and bucket to substantially the position shown in Fig. 1. The drum 16 is then held and drum 6 is rotated to take up the rope 5 to outhaul the carriage and bucket and at the same time let out the inhaul line 8, this operation being continued until the bucket reaches a point on the other side of that where the excavating is to take place.

During the outward movement of the carriage and bucket toward the tail tower the inhauling line 8 is paid out, so that the carriage will have free movement along the cable 5. When the carriage and bucket have reached the desired position, the drum 16 is rotated to pay out the running connection 15, to slacken the loop and thereby lower the main cable, so that the bucket may be brought down to engage the material to be excavated, and this having been done, said drum is held so as to prevent further slackening of the main cable. The drum 6 is then rotated in a direction opposite to that just described as is also the drum 20, so that the cutting end of the bucket is dragged into the material to be excavated, whereby the material is lowered into the bucket. The bucket having received its load, the drum 16 is then revolved to pull in on the loop 11, so as to take up the main cable and raise the carriage and loaded bucket, after which the drum 6 is revolved to take up the inhaul line 8 to traverse the carriage and bucket along the main cable to the point where the load is to be dumped. When the bucket has reached the point where its load is to be deposited the drum 6 may be stopped and held against rotation and the digging line is slacked off so as to permit the weight of the load to throw down the forward end of the bucket whereby the load is dumped. The running connection is then pulled in to take up the main cable to raise the carriage and the same is outhauled by revolving the drum 6

to take up said main cable, the lines 8 and 18 being paid out to permit the carriage to move toward the tail tower, after which the digging operation as heretofore described, may again take place.

The tail tower is preferably of an elevation less than the head tower in order that the cableway may have the proper inclination to permit the bucket to dig properly, and also in order that the bucket may, if desired, be permitted to gravitate toward the tail tower instead of pulling it out by the main cable as described.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a loop in one of the bucket traversing lines, and means for taking in and letting out said loop to regulate the elevation of the bucket.

2. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a digging line connected to the bucket, a loop in one of the bucket traversing lines, and means for taking in and letting out said loop to regulate the elevation of the bucket.

3. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a digging line connected to the bucket, a loop in said hauling line, and means for taking in and letting out said loop to regulate the elevation of the bucket.

4. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a digging line connected to the bucket, and means for pulling a loop in the hauling line to regulate the height of the bucket.

5. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a digging line connected to the bucket, and means for pulling a loop in the hauling line to regulate the height of the bucket.

6. In an excavating cableway, a head tower and a tail tower, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage and passing over spaced points on one of the towers, a bucket suspended from the carriage, and means engaging the hauling line between said spaced points for pulling a loop in said

hauling line to regulate the elevation of the bucket.

7. In an excavating cableway, a head tower and a tail tower, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage and passing over spaced points on one of the towers, a bucket suspended from the carriage, and means engaging the hauling line between said spaced points for pulling a loop in said hauling line to regulate the elevation of the bucket, said means consisting of a running connection.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES L. WACHTER.

Witnesses:

M. E. McNinch,

C. G. Weylmen.

Correction in Letters Patent No. 1,002,545.

It is hereby certified that in Letters Patent No. 1,002,545, granted September 5, 1911, upon the application of Charles L. Wachter, of New York, N. Y., for an improvement in "Cableway Excavating Systems," an error appears in the printed specification requiring correction as follows: Page 1, line 99, the word "page" should appear as a proper name—*Page*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3d day of October, A. D., 1911.

[SEAL.]

E. B. MOORE,

Commissioner of Patents.

5. In an excavating cableway, elevated supports, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage, means for operating the cable and hauling line to traverse the carriage, an excavating bucket suspended from the carriage, a digging line connected to the bucket, and means for pulling a loop in the hauling line to regulate the height of the bucket.

6. In an excavating cableway, a head tower and a tail tower, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage and passing over spaced points on one of the towers, a bucket suspended from the carriage, and means engaging the hauling line between said spaced points for pulling a loop in said

hauling line to regulate the elevation of the bucket.

7. In an excavating cableway, a head tower and a tail tower, a main cable passing over said supports, a carriage on the cable, said cable being reversed upon itself and connected to the carriage, a hauling line connected to the carriage and passing over spaced points on one of the towers, a bucket suspended from the carriage, and means engaging the hauling line between said spaced points for pulling a loop in said hauling line to regulate the elevation of the bucket, said means consisting of a running connection.

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