W. L. BARTON.

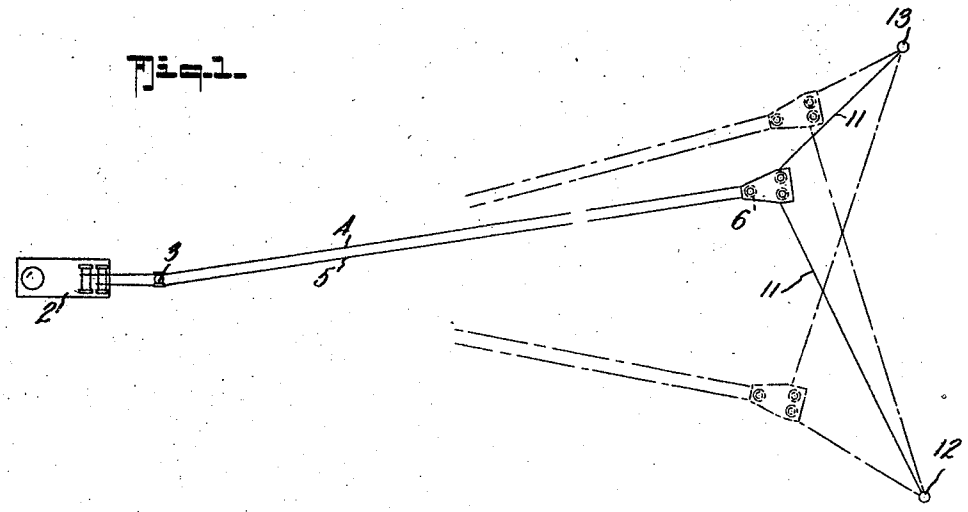
OVERHEAD TRACK LINE.

APPLICATION FILED OCT. 24, 1921.

1,425,827. **Patented Aug. 15, 1922.**

2 SHEETS—SHEET 1.

Fig. 1.



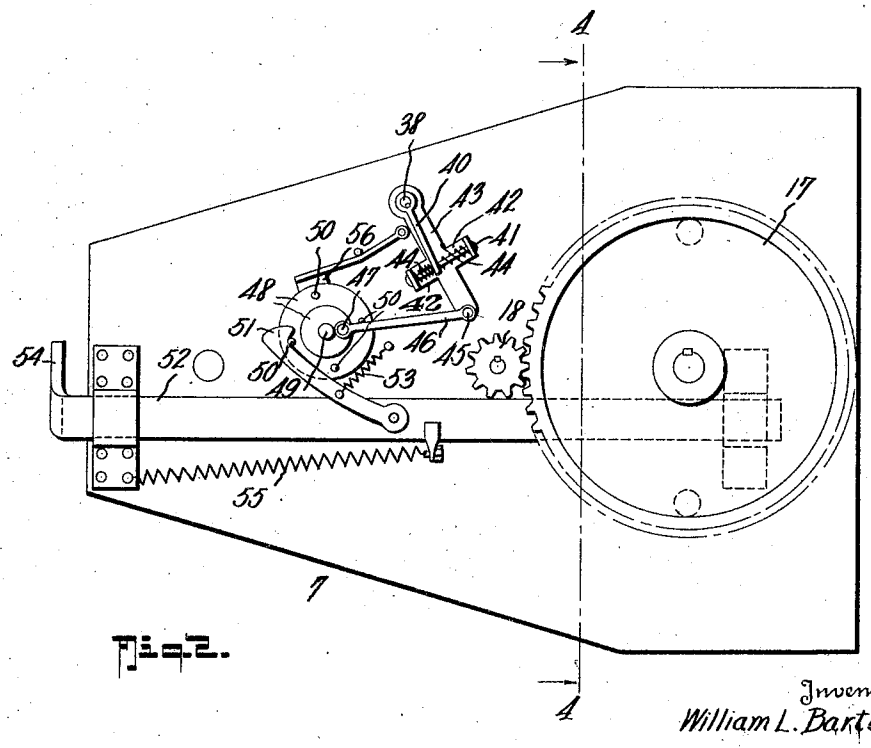


Fig. 2.

Inventor
William L. Barton

By Fred G. Dieterich & Co
Attorneys:

W. L. BARTON.

OVERHEAD TRACK LINE.

APPLICATION FILED OCT. 24, 1921.

1,425,827. Patented Aug. 15, 1922.

2 SHEETS—SHEET 2.

Fig. 3.

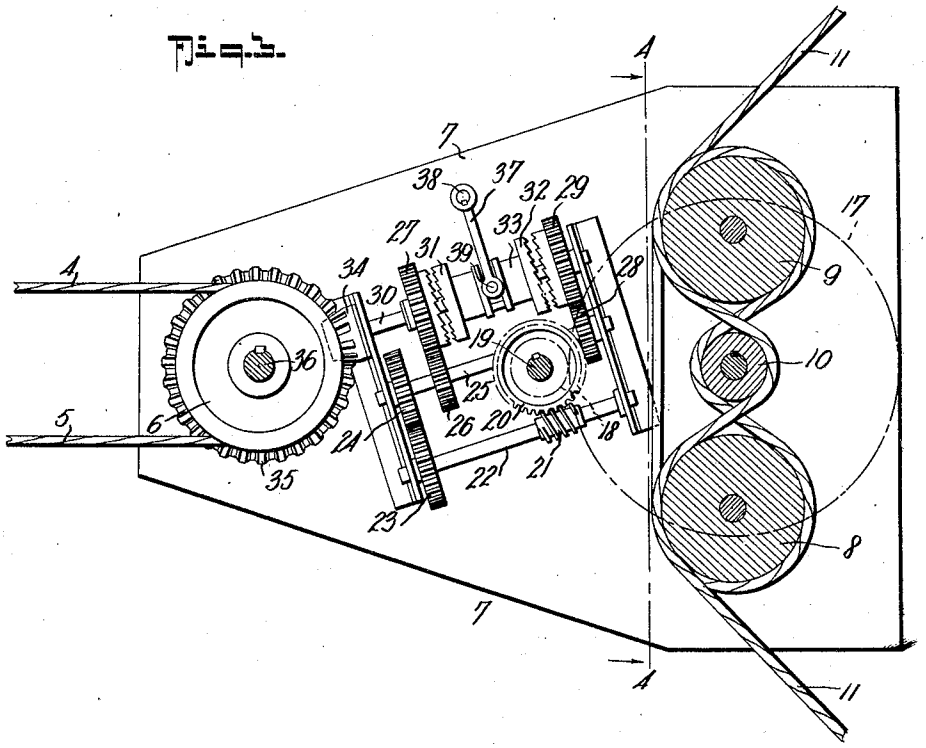
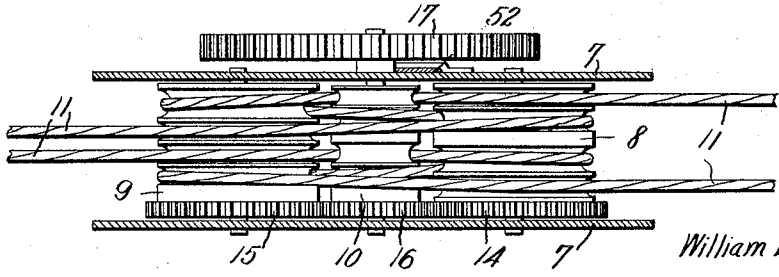


Fig. 4.



Inventor
William L. Barton

By Fred J. Dieterich & Co
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM LIONEL BARTON, OF VANCOUVER, BRITISH COLUMBIA, CANADA, ASSIGNOR OF FORTY-FIVE PER CENT TO JOHN L. KERR, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

OVERHEAD TRACK LINE.

1,425,827. Specification of Letters Patent. Patented Aug. 15, 1922.

Application filed October 24, 1921. Serial No. 510,166.

To all whom it may concern:

Be it known that I, WILLIAM LIONEL BARTON, citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented a certain new and useful Improvement in Overhead Track Lines, of which the following is a specification.

This invention relates to an overhead wire rope transportation system, and particularly comprises a means for laterally traversing the outer end of the overhead track line to enable a wider area to be included within its range for transportation.

This result is attained by supporting the outer end of the track line to a frame which is movable along an anchoring line or lines between two spar poles which are laterally spaced apart approximate the desired extent of lateral travel, and is particularly applicable to the transportation system wherein the transportation carriage is movable on two parallel lines which are endwise movable in relation to one another; which system is the subject of a patent application filed by me and now pending in the office, said application having been filed on September 24, 1921, under Serial No. 502,862.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Fig. 1 is a plan of the track line showing the application of the improvement.

Fig. 2 is a plan of the anchorage frame of the outer end of the track line in which is the mechanism by which the frame itself is laterally traversed along the anchoring line.

Fig. 3 is a sectional plan of the same, and

Fig. 4 is a sectional elevation on the line 4—4 in Figs. 2 and 3.

In these drawings 2 represents the location of the donkey engine and 3 the spar pole adjacent the same. Parallel lines 4 and 5 of the track rope pass from separate drums on the donkey engine over sheaves on the spar pole 3 at the required height of the track and around a sheave 6 rotatably mounted at the outer limits of the track in a plate frame 7 which is carried on two transverse lines 11 between the outer spar poles 12 and 13, the connection of the frame 7 to the supporting lines 11 being such as will enable the frame to be traversed in a manner to be described between the spar poles 12 and 13 and will be retained at any desired position between them.

This result is attained by having two reels 8 and 9 rotatably mounted between the upper and lower plates of the frame 7 with a third reel 10 of smaller diameter between them. These reels are grooved to receive the ropes 11 which are passed around, preferably in the following manner.

One of the ropes 11 passes from one spar pole around the inner side of the reel 8, around the outer side of the intermediate reel 10 and around the reel 9 to encircle it, then around the inner side of the intermediate reel 10 and around the reel 8, and therefrom across to the reel 9 and thence to the other spar pole 13. The other rope 11 from the spar pole 12 is reversely passed from the inner side of 8 to 9, around 9, around the inner side of 10, around 8, around the outer side of 10, and around the inner side of 9 to the other spar pole 13. This reverse coiling is that the tension of one rope will counteract that of the other in the pressure imposed on the bearings of the roller.

The friction of these ropes oppositely passed around the reels 8, 9 and 10 will effectively hold the frame 7 with the anchoring sheave 6 of the outer end of the track in any desired position on the ropes 11 between the spar poles 12 and 13.

It remains to describe how the reels 8, 9 and 10 are rotated to effect movement of the frame 7 on the anchoring lines.

This is effected in a manner to be described, from the endwise movement of the track lines 4 and 5, which movement is the subject of a co-pending application.

The sheave 6, around which the track rope passes, is secured on its shaft 36 and on the same shaft is secured a bevel wheel 35, the teeth of which mesh with a bevel pinion 34 secured on the end of a shaft 30 rotatably mounted in bearings secured between the upper and lower plates of the frame 7.

On this shaft 30 a sleeve 33 is mounted to be endwise movable on the shaft and rotate with it by a driving feather secured in the shaft. Each end of the sleeve is provided with a ratchet toothed clutch engagement 31 and 32, the teeth of which are angled to engage and drive in opposite directions, gear wheels 27, 29 freely rotatable on the same shaft. The teeth of these gear wheels 27

and 29 mesh with those of gears 26 and 28 secured on a parallel shaft 25, rotation of which is imparted to another parallel shaft 22 through gears 24, 23. On the shaft 22 is secured a worm 21, the thread of which meshes with corresponding teeth in a worm wheel 20 secured on an upright shaft 19 rotatable in the frame 7. To the upper end of this shaft 19 is secured a pinion 18, the teeth of which mesh with those of a spur wheel 17 secured on the upper end of the shaft on which the middle reel 10 is secured.

On the same shaft as this reel 10 is a gear wheel 16, the teeth of which mesh with those of wheels 14 and 15 secured on the adjacent reels 8 and 9, the pitch circles of which gears 14, 15 and 16 are in the same ratio as the diameters of the rope in the grooves of the reels.

Endwise movement of the track ropes 4 and 5 in relation to one another, which endwise movement is a characteristic of applicant's system of wire rope transportation, thus rotates the sheave 6 around which the track rope passes, and that rotational movement is imparted through the bevel gears 35, 34 to rotate the shaft 30 and may be applied to rotate the shafts 25 and 22 and through them the connected gearing to rotate the reels 8, 9 and 10 to traverse the frame 7 on the anchoring ropes 11.

The sleeve 33 is moved endwise to one side or the other to bring either clutch 31 or 32 into engagement to drive the gear train, by a forked lever 37 secured on a vertically disposed rocking shaft 38, the fork of which lever engages pins 39 projecting from segments which fit a groove in the sleeve 33.

On the upper end of this shaft 38 is secured a rocking arm 40, the free end of which is apertured to move freely on a pin 41 secured in the upwardly turned ends of a T projection 42 of an arm 43 freely mounted on the shaft 38 and springs 44 are introduced between each upwardly turned end and the arm 40, by which spring resistance the arm 40 is yieldingly moved with the arm 43.

The outer end of this arm 43 is connected at 45 by a rod 46 to a crank pin 47 secured in a disc 48 mounted free on a stud 49 secured to and projecting from the frame 7.

Four pins 50 are secured at an equal distance apart and at equal radii outside the circle of movement of the crank pin 47 in the disc 48. These pins 50 are designed to be engaged by a hook pawl 51 pivoted to a bar 52 slidably mounted in the frame 7 to move endwise. This hook pawl is held in light engagement with the pins 50 by a spring 53. The bar 52 is held to project its end 54 beyond the end of the frame 7 by a spring 55, in which position the end 54 will be engaged by the transportation carriage when it reaches the outer limit of its movement on the track 4, 5 and will be pressed inward, in which movement the crank disc 48 with its pin 47 will be rotated by the hook pawl 51 through a quarter of a revolution.

When the crank pin 47 is at either limit of its throw, one or other of the clutch engagements 31 or 32 is in action to traverse the carriage 7, but rotation of the crank disc through a quarter revolution from either of these limits will place the sleeve 33 in the neutral position, when it will run free on the shaft 30 and the frame 7 with its track line sheave 6 is stationary on the anchoring lines 11; but if the transportation carriage is allowed to reach the limit of its travel on the track rope it will engage the end 54 of the bar 52 and move it inward to move the crank disc through a quarter revolution, which movement will either move the sleeve to throw it into engagement, if it is in neutral, or will release it from such engagement into neutral.

When the sleeve 33 is moved to bring either end into clutching engagement to move the frame 7 to or from either spar pole 12 or 13, it may be allowed to remain there, and the frame 7 will be gradually traversed in the manner described during endwise movement of the track ropes 4 and 5. If it is not desired to traverse the outer end of the track line the transportation carriage may be run to the end of the track lines, and the clutch sleeve 33 will be thrown into the neutral position.

The ratchet form of the teeth 31 and 32 and the spring connection between the arm 43 and the arm 40 will enable engagement to be retained whether the track ropes are endwise moved one way or the other: Moved in one direction they will effect the traversing drive, while in the opposite direction the clutch teeth will pass over one another without effecting movement of the traversing gear.

A resilient brake 56 is applied to the edge of the crank disc 48 to hold it against any tendency to move back from the position to which it has been set by the pawl 51.

I do not desire to be confined to the particular manner here described and illustrated of effecting the traversing of the carriage on the anchoring lines 11, nor to the particular manner of throwing this traversing mechanism into and out of action, as I regard the essential feature of the invention to be the means by which the outer end of an overhead track line may be laterally traversed within a desired limiting width, and the means whereby that traversing movement may be effected by endwise movement of the track line.

Having now particularly described my invention, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

1. An overhead wire rope track line, the

inner end of which is connected to a spar pole adjacent the hauling engine, a transverse anchoring line to which the outer end of the track line is connected, said transverse anchoring line having its ends anchored whereby said transverse anchoring line becomes relatively stationary, and means for moving the track line connection along the transverse line.

2. An overhead wire rope track line, the inner end of which is connected to a spar pole adjacent the hauling engine, a transverse anchoring line connected to and extending between spar poles at the outer end of the track, which spar poles are substantially equidistant from the inner one, means for connecting the outer end of the track line to the transverse line, and means for moving the track line connection along the transverse anchoring line.

3. An overhead wire rope track line, the ends of which are connected to separate drums of the donkey engine, and the loop of which passes around a sheave at the outer end of the track, a frame in which the outer end sheave is mounted, a transverse anchoring line on which the sheave frame is endwise movable, and means operative by endwise movement of the track line for moving the track sheave frame along the transverse anchoring line.

4. An overhead wire rope track line, comprising the combination with a hauling engine and a spar pole adjacent, a transverse anchoring line secured to spar poles located at a distance apart adjacent the outer end of the track and substantially equidistant from that adjacent the engine, a track line sheave rotatably mounted in a frame endwise movable on the anchoring line, and a track line which passes around the track line sheave on the anchoring line and around parallel sheaves on the inner spar pole and has its ends connected to separate drums of the hauling engine, and means whereby endwise movement of the track line will endwise move the track line sheave on the transverse anchoring line.

5. A wire rope overhead track line, the ends of which are connected to separate drums of the hauling engine, which line passes over parallel sheaves on a spar pole adjacent the engine and around a sheave connected to a transverse anchoring line at the outer end of the track, means for connecting the outer end sheave to the transverse line, said means comprising a frame in which the outer end sheave is rotatably mounted, said frame having also a series of grooved sheaves around which the transverse line passes which sheaves are together rotatable by gearing from the outer end sheave so that endwise movement of the track line will effect movement of the outer end sheave frame on the transverse anchoring line.

6. A wire rope overhead track line, the ends of which are connected to separate drums of the hauling engine, which line passes over parallel sheaves on a spar pole adjacent the engine and around a sheave connected to a transverse anchoring line at the outer end of the track, means for connecting the outer end sheave to the transverse line, said means comprising a frame in which the outer end sheave is rotatably mounted, other grooved sheaves mounted in the same frame around which other sheaves the transverse anchoring line passes, means for rotating the grooved sheaves of the anchoring line in either direction from the outer end sheave whereby the frame in which these sheaves are mounted is endwise moved along the anchoring line, and means for releasing the driving connection between the end sheave of the track line and the traversing sheaves of the anchoring line.

7. In apparatus of the character stated, the combination with a transverse anchoring line, the ends of which are relatively fixedly secured, an overhead wire rope track line, a frame having a pulley around which said track line passes, means for running said track line in one direction or the other around said pulley, friction drums on said frame around which said transverse anchoring line is wound, and means for driving said friction drums in either direction accordingly as said track line is run around its pulley in one direction or the other for the purposes described.

In testimony whereof I affix my signature.

WILLIAM LIONEL BARTON.