Oct. 1, 1929. V. L. PEUGH 1,729,964

CABLEWAY

Filed May 9, 1927 2 Sheets-Sheet 1

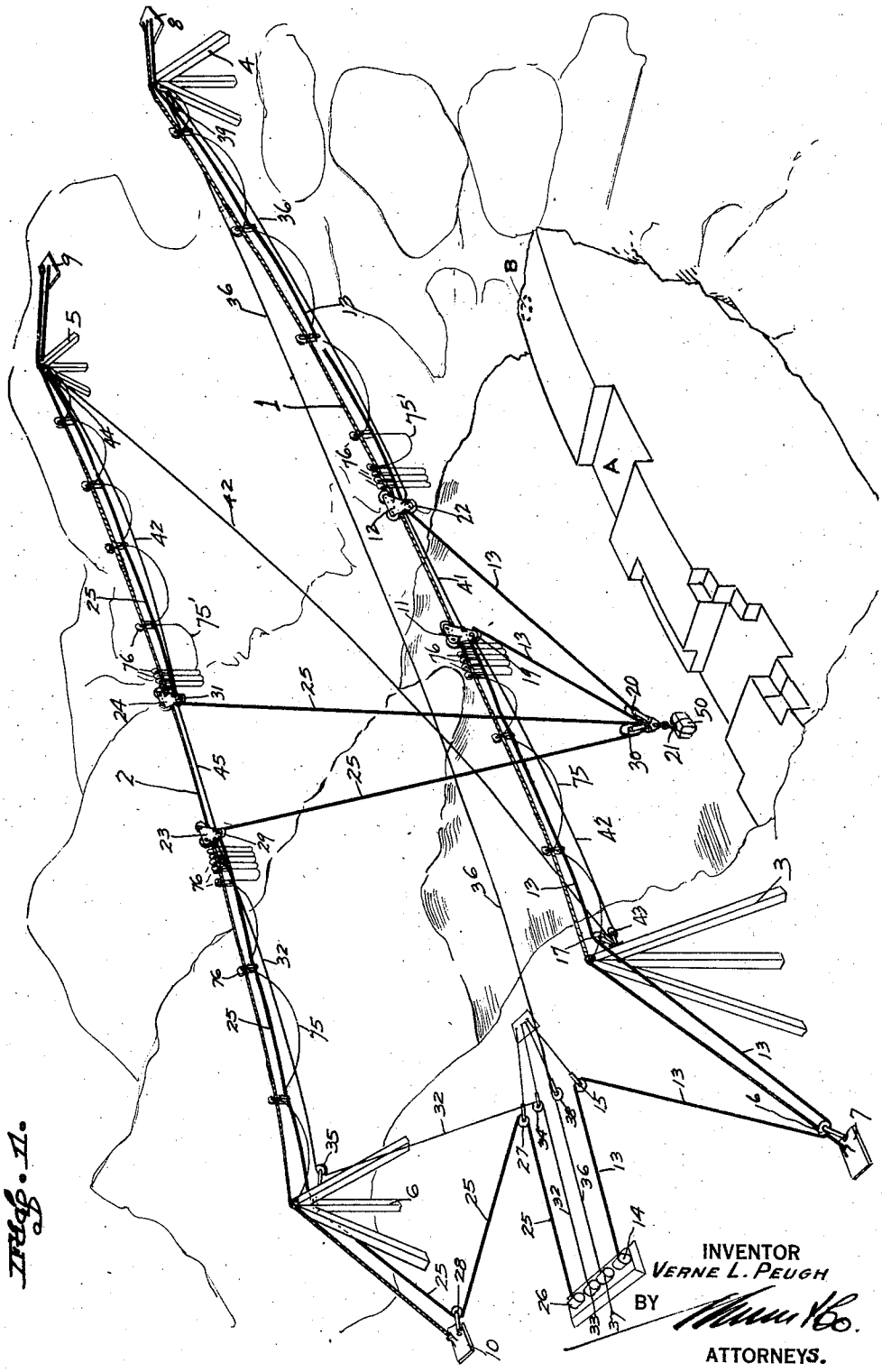


Fig. 1.

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Fig. 2.

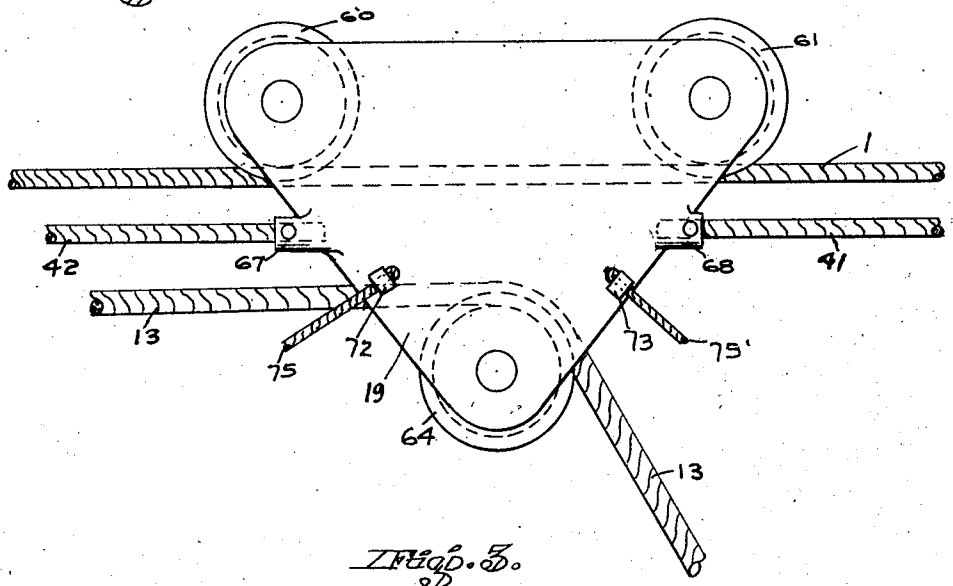


Fig. 3.

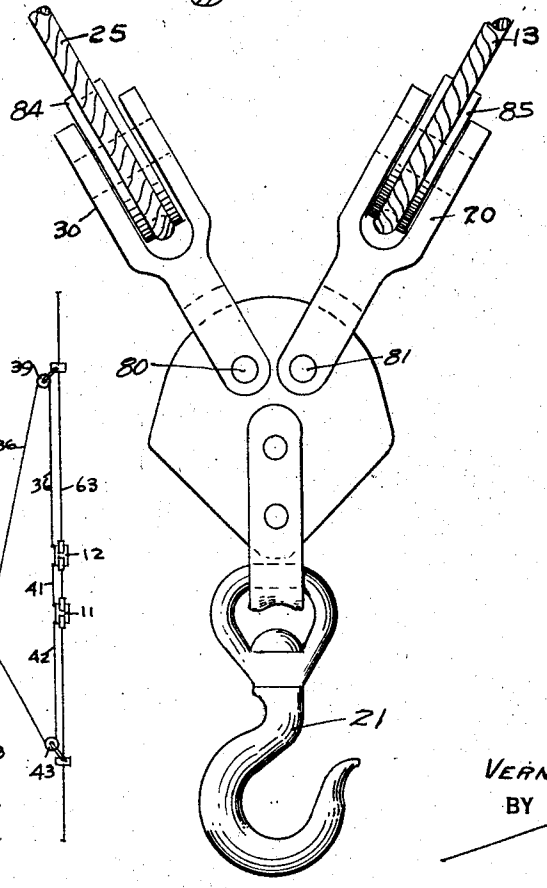
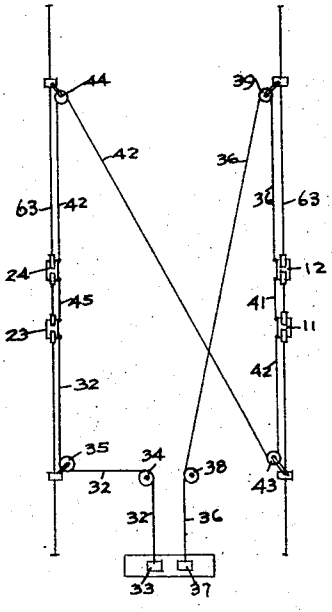


Fig. 4.



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UNITED STATES PATENT OFFICE

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CABLEWAY

Application filed May 9, 1927. Serial No. 190,034.

This invention relates to cableways and more specifically to that class of cableways that is employed in such constructions as dams, bridges, trestles, elevated runways and the like, or in the building of any class of structure where an overhead tramway could be used to advantage.

The primary object of this invention is to provide an overhead travelling system that is capable of carrying loads and depositing them at any and all points within a prescribed three dimensional space.

One advantage resides in the fact that a load may be carried from one point to another point either above or below in the same plane or it may be carried in a direction perpendicular to this plane or it may be carried in a third direction perpendicular to the last mentioned plane. Or still further it may be carried in all three directions at once. This provides a three dimensional movement which is the ultimate and defines space itself.

A further advantage lies in the arrangement of parts. By introducing two travellers properly spaced apart on the same supporting line it is easily seen that all twisting of load lines is eliminated. Further than this, the points of suspension are separated on the supporting cable and do not cause excessive stresses as the single point of suspension does. Then by combining this two point suspension with another suspporting cable identical in detail, I obtain results that are new to the art of cableway manipulation and give a wider range of application than has heretofore been available for overhead cableways.

In such structures as dams it is particularly necessary to have a system that can pick up a load at one point and transfer it to another without any pulling and hauling by the men as is customary with the present equipment. It is therefor obvious that the application of this invention which transports from any point to any point within a prescribed space, would produce better results both from an efficient and an economical point of view.

A still further advantage lies in the central control system, which permits one man to control the three movements from one point.

The above advantages, together with those that may subsequently be developed in the descriptions, constitute my invention, which is more fully explained by reference to the drawings, in which:

Figure 1 shows my idea as it would be used in building a dam;

Figure 2 shows an enlarged view of the main traveller;

Figure 3 shows an enlarged view of the hook; and

Figure 4 is a diagrammatic view showing how the outhaul and inhaul lines are "hooked up."

Referring now in detail to the drawings, in Figure 1 an ordinary dam A is shown as under construction. Spanning the canyon at an elevation sufficiently high to permit of manipulating the underslung cables satisfactorily, are two main cables 1 and 2 which are supported at each side by suitable towers 3—4—5 and 6, and anchored at each end as at 7—8—9 and 10. The main cables 1 and 2 are substantially parallel but may be used within certain limits even if they are divergent or convergent as the case may be. Carried on cable 1 are two travellers 11 and 12 which are designed to ride the main cable and carry the load cable 13, which load cable has its origin at the hoist drum 14, and is threaded through a sheave block 15 suitably anchored in front of the hoist, then through another sheave block 16 fixed to the anchorage 7, on through another sheave block 17, which is mounted on the tower 3, when it is suspended under the main cable 1, and carried by the standard carriers 76.

After passing through a sheave 19 in the traveller 11, the cable 13 continues on through a sheave 20, pivotally attached to the hook 21 which is the carrying hook, and passes up to another sheave 22 which is carried by traveller 12. After passing over this last named sheave the cable 13 is suspended again under the main cable 1 by the carriers 76 and continues on over the top of the tower 4 to the anchorage 8 where it is dead ended.

An identical construction is provided for main cable 2 which carries two travellers 23 and 24 which are designed to ride the main

cable and carry the load cable 25. Said load cable has its origin at the hoist drum 26 and passes over a sheave 27 which is suitably anchored in front of the hoist. From this sheave it goes over another sheave 28 fixed to the anchorage 10 and continues on over another sheave, not shown on the opposite side of tower 6. From this point it is suspended under the main cable and carried by the carriers 76 to the traveller 23 where it passes over the sheave 29 carried by said traveller. From here the cable 25 continues on through a sheave 30 which sheave is pivotally attached to the hook 21 and passes up to another sheave 31 carried by the traveller 24. From here on it is suspended under the main cable 2 and carried by the carriers 76 until it passes over the top of the tower 5 and on to the anchorage 9 where it is dead ended.

The aforementioned structure provides a lifting and a lateral movement, but will not produce a travelling movement along the main cables.

In order to get this movement which furnishes the third dimension heretofore mentioned, there is provided an inhaul line 32, which has its origin at the hoist drum 33 from which it passes over a sheave 34, suitably anchored in front of the hoist, and continues through the sheave 35, suitably fastened to the tower 6, on to the traveller 23 to which it is fastened.

The outhaul line 36 starts at the hoist drum 37 and passes through a sheave 38 suitably anchored in front of the hoist, from there it passes over the canyon and through the sheave 39, which sheave is fastened to the tower 4. After passing through sheave 39 it continues back under the load cable and is fastened to the traveller 12.

To complete the control system a hook-up between the two main cables is affected in the following manner: between the travellers 11 and 12 there is provided a connecting cable 41, which regulates the distance between them and also serves as a connecting link in connecting the inhaul and outhaul lines. Connected to the opposite side of the traveller 11 is another cable 42, which provides another link in the connection, which cable is carried through a sheave 43 fixed to tower 3. From there is crosses back over the canyon and passes through another sheave 44 fixed to tower 5. After passing through the last named sheave it passes along under the load cable and is finally attached to traveller 24. Between the travellers 23 and 24 there is provided a cable 45, one end of which is attached to 23 and the other end to 24. This last named cable provides the final link in the control system which is best shown in Figure 4.

Here it can be observed that when the hoist drum 33 draws in on the cable 32 the travellers 23—24—11 and 12 are moved simultaneously an equal distance in the same direction, and that the same amount taken in by drum 33 must be "payed out" by drum 37. This would constitute an inhaul, whereas by reeling in the drum 37 an outhaul movement would take place, just the reverse of the foregoing action. Suppose, for example, a bundle 50 was held by the hook and it was desired to place it in the circle designated by B on the farther corner of the dam. The outhaul would be simple, but to place it on the exact spot would require something more in the line of cableway equipment than now exists. My invention provides this. Movement transverse to the cables 1 and 2 is accomplished by drawing in on the load cable 13 and paying out on the load cable 25, and vice versa. Transverse movement of the bundle 50 is also effected by paying out on one load cable only, or drawing in on one only. By drawing in both load lines equally, a raising movement is accomplished,—a lowering is just the reverse. Thus the bundle 50 can be moved back to a line crossing the spot B, by taking in on line 36 and paying out on line 32. Then, assuming that the spot is to the right of the bundle, slack could be fed into cable 25, and if the bundle dropped too much as it was being moved, the cable 13 could be taken up until the bundle was directly above the spot. Now a paying out of both cables 13 and 25 at the proper relative speeds, will lower the bundle directly upon the spot.

Figure 2 shows the structure of the travellers which are provided with two grooved wheels 60 and 61, designed to ride the supporting cables 1 or 2. I have shown the cable 1 in Figure 2. A third wheel 64, in sheave 19 is similar to the other two and is located below the supporting cable in such a manner that it carries the load line 13. Attached to each side as at 67 and 68 are the inhaul line 42 and the outhaul line 41. Also attached to each side as at 72 and 73, are the small auxiliary lines 75 and 75′ respectively. These serve as means for limiting the distance between adjacent carriers 76.

Figure 3 shows an enlarged hook 21 with its attendant structure. Pivotally mounted as at 80 and 81 on the hook structure are the two sheaves 20 and 30, and rotatably mounted within these sheaves are two wheels 84 and 85 respectively, which wheels are adapted to carry the load cables 13 and 25 respectively.

The foregoing description pertains to only one application of my invention, and knowing there are many more cases where it could be applied, I understand that I am entitled to such modifications and refinements that do not depart from the spirit of the foregoing description, nor the appended claim.

It should be noted that the load lines 13 and 25 are run through the standard car-

riers 76 which are held equally spaced along the main cables 1 and 2 by the small auxiliary lines 75 and 75′. The spacing between the carrier 76 does not exceed a predetermined limit, otherwise the load lines would sag between carriers. Sufficient carriers are provided for each line 13 and 25 to be spaced at proper distance across the entire length of the lines should the travelers 11 and 12 be moved entirely thereacross.

I claim:

A cableway comprising two main cables anchored at their ends, a carrier mounted on each cable, a load cable carried by each carrier, a hook movably supported between the two load cables, and a carrier-moving cable extending along the length of one main cable and then extending diagonally across from the end of the first main cable to the opposite end of the other main cable and then extending throughout the length of the second main cable.

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