

J. Q. DAY.
ORE CONVEYER.

No. 344,169.

Patented June 22, 1886.

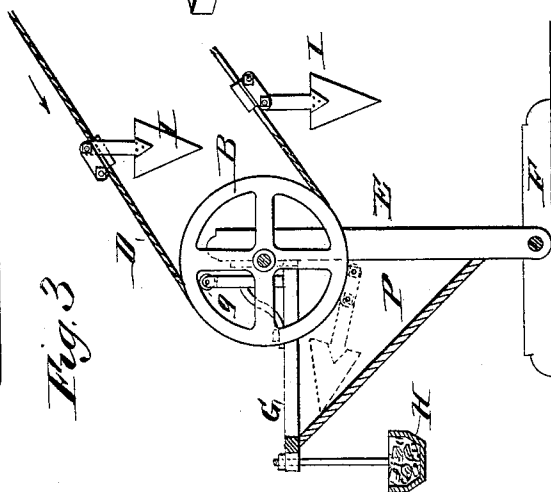
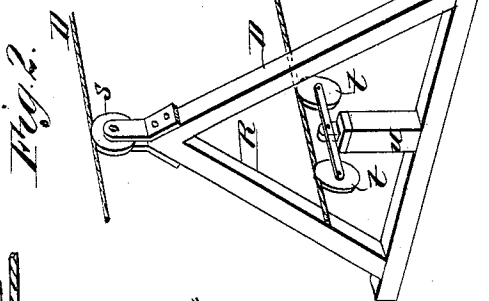
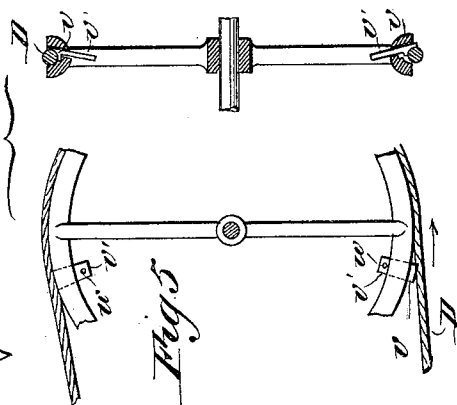
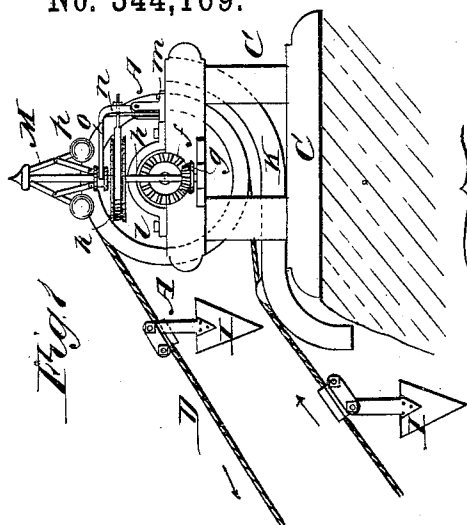
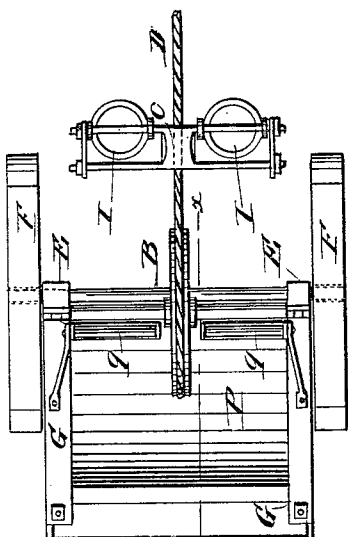


Fig. 4



WITNESSES:

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JOHN Q. DAY, OF RED CLIFF, COLORADO.

ORE-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 344,169, dated June 22, 1886.

Application filed December 5, 1885. Serial No. 184,899. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. DAY, of Red Cliff, in the county of Eagle and State of Colorado, have invented a new and Improved Ore-Conveyer, of which the following is a full, clear, and exact description.

My invention relates to the construction of a conveyer whereby ore or other substances may be conveyed down from mountain sides or other elevated places; and the invention consists of an endless-wire cable carrying buckets and arranged to run over grooved wheels or pulleys, the motion of the cable being caused by the weight of the charged buckets; and the invention further consists of certain constructions whereby the speed of the cable is automatically regulated, and whereby the buckets are filled and dumped automatically.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of the upper portion of the cable, together with its suspending-wheel and the speed regulating mechanism. Fig. 2 is a perspective view of one of the intermediate supports. Fig. 3 is a vertical sectional view of the lower or dumping station, the view being taken on line *x x* in Fig. 4. Fig. 4 is a plan view of the lower station. Fig. 5 illustrates certain details in the construction of the suspending and guiding wheel. Fig. 6 is an enlarged view of the upper station. Fig. 7 is a plan view of the same. Fig. 8 is a view illustrating in detail the bucket-suspending bar or yoke.

In the construction of a conveyer such as is illustrated in the drawings I provide two large grooved supporting-wheels, A and B, of which the upper wheel, A, is mounted in bearings carried by a rigid supporting-frame, C, the wheels named being each provided with a grooved peripheral face, in which there is arranged the endless carrier-cable D. The lower wheel, B, is mounted in bearings carried by two vertical posts, E E, which posts are pivotally connected to a base plate or frame, F, the posts being provided with an extending frame-work, G, from the outer end of which there is suspended a weight-box, H, so that, irrespective of the temperature, a

uniform tension is maintained upon the carrier-cable. A number of buckets, I I, are loosely suspended from the rods, as *a a*, which are secured to the cable D at regular intervals throughout its length, so that the buckets will hang in the positions shown in the drawings, the connection between the cable and the bars being formed by means of a clip, *b*, which is riveted to a flat plate, *c*, Babbitt metal being afterward poured in between the meeting edges of the parts, so as to keep the cable from chafing and to afford a better union. A strengthening or brace rod, *e*, is arranged as best shown in Fig. 8. From this construction it will be seen that the buckets are arranged in pairs, a single bucket in each pair being on either side of the cable, in position to clear the wheels A and B.

Directly in the path of the cable, as it approaches the wheel A of the upper station, I arrange two S-shaped chutes, K and K, which are semicircular in cross section, into which the ore or material to be conveyed is placed, so that as the cable advances in the direction of the arrow the buckets will be tilted by striking against the bottom of the chutes and automatically filled with the material previously placed in said chutes; and as the buckets are carried over the wheel the weight of the material with which they have been filled will tend to impart a downward motion to the upper length of the cable; and it will be understood that after a portion of the buckets have been filled they will through gravity act to keep up the motion of the cable in the direction indicated; but, in order that this motion may not be accelerated to too great extent, I provide the apparatus with an automatic brake, constructed in the manner best shown in Fig. 6.

Upon the axle or shaft of the wheel A, I arrange a bevel-gear, *f*, which engages with a bevel-pinion, *g*, carried by a vertical shaft, *h*, which is mounted in bearings secured to the side of the frame-work C. Upon the upper end of the shaft H there is a governor, M, provided, as usual, with a sliding collar, *i*. Just below the collar *i* the shaft H carries a grooved wheel, *k*, and in the groove of this wheel there is fitted a brake-strap, *l*, the ends of which are carried and secured to the vertical arm *n* of a lever, N, the lower end of said vertical arm

being pivoted in a bracket, *m*, while the horizontal arm *o* extends forward to engage by means of its fork *p* with the groove of the collar *i*, so that as the speed at which the wheel
 5 A is revolving is increased the governor M will act to elevate the collar *i*, thereby rocking the lever N upon its pivotal connection with the bracket *m*, and this movement of the lever will draw the brake-strap *l* close against the
 10 wheel *k*, and the friction produced will tend to decrease the speed of the wheel A, and consequently of the carrier-cable D. As the buckets approach the wheel B of the lower station they strike against rollers *q q*, which extend
 15 outward from the frame G over the hopper P, so that as the motion of the cable carries the buckets forward they will be overturned and their contents dumped into the hopper P. Where the distance from the upper to the lower
 20 station is very great, it is necessary to interpose one or more sub-stations, so that the cable D may be properly supported throughout its length. These intermediate stations consist of triangular frames R R, which carry upper
 25 sheaves, *s*, above the apex of the triangle, and lower sheaves, *t t*, which are supported on a post, *u*, projecting upward from the base directly beneath the apex of the triangle formed by the timbers of the frame.
 30 In order that the requisite amount of friction may be obtained between the wheel A and the cable D to prevent the cable from slipping in the groove of said wheel, I provide an automatic clutch, which will be best seen in Fig.
 35 5. This clutch is formed of a sliding block, *v*, formed with a shank, *v'*, which fits in an inclined slot formed in the rim of the wheel A, the face of the block *v* being concave and substantially of the contour of the groove formed
 40 in said rim. When the cable is advancing in

the direction of the arrow and that portion of the rim of the wheel carrying the block *v* is just about to be borne upon by the cable, the block *v* will be extended by its own gravity, as shown in Fig. 5, the range of motion being
 45 limited by a pin, *w*. As the cable strikes against the curved face of the block *v* the block is forced upward in its beveled seat, and the cable will be firmly held between the face of the block and the opposite face of the rim of
 50 the wheel.

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

1. The combination, with an endless cable 55 mounted on grooved wheels and carrying buckets I I, of chutes K K, substantially as described.

2. The combination, with an endless carrier-cable carrying buckets mounted on grooved 60 wheels, one of which is carried by a movable support controlled by a weight, of chutes, as K, and rollers, as *q*, substantially as described.

3. The combination, with an endless carrier belt or cable carrying buckets I I and mounted 65 on grooved wheels A and B, of a speed-regulating mechanism consisting of a gear, *f*, pinion *g*, shaft *h*, governor M, lever N, wheel *k*, and a brake-strap, *l*, substantially as described.

4. The combination, with an endless carrier 70 belt or cable carrying buckets I I and mounted in grooved wheels A B, of blocks *v*, formed with shanks *v'*, and mounted in inclined grooves in the periphery of one or both of the carrying-wheels, substantially as described.

JOHN Q. DAY.

Witnesses:

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