

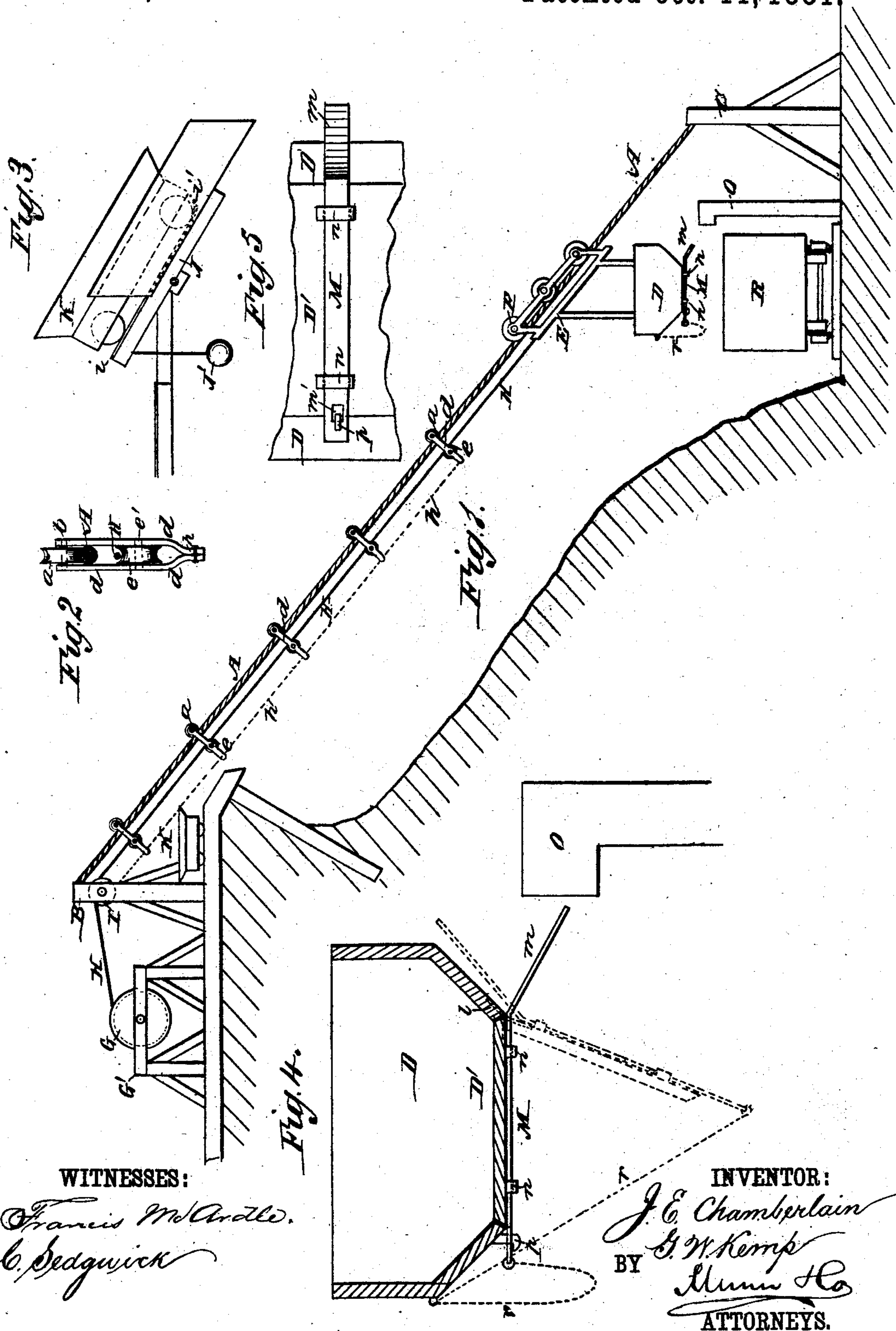
(No Model.)

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ROPE RAILWAY.

No. 248,140.

Patented Oct. 11, 1881.



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ROPE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 248,140, dated October 11, 1881.

Application filed July 23, 1881. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. CHAMBERLAIN and GEORGE W. KEMP, of Charleston, in the county of Kanawha and State of West Virginia, have invented a new and useful Improvement in Rope Railways, of which the following is a full, clear, and exact specification.

Figure 1 is a side elevation of our improved apparatus. Fig. 2 is a cross-section through the check-line and supporting-sheaves. Fig. 3 represents the means employed for loading the suspended cars or baskets at the upper end of the apparatus. Fig. 4 is a cross-section through the suspended conveying-car. Fig. 5 shows a portion of the bottom of the car and its locking-bar.

Similar letters of reference indicate corresponding parts.

The object of our invention is to improve the construction and facilitate the proper operation of inclined rope railways of the class in which coal, earth, or other material is conveyed from an elevated to a lower point in cars or baskets suspended from a pair of wire cables stretched between the receiving and discharging points at proper tension, the descending loaded car or basket on one cable causing the ascent to the loading-point of the empty car on the other adjacent cable.

The invention consists in the means provided whereby the check-ropes by which the suspended car or basket is drawn or held are prevented from bellying or sagging between the car or basket and the drum on which said check-ropes are wound, and in the means provided for the automatic discharge of the load at the lower end of the apparatus, and in certain novel details of construction, as hereinafter fully described and claimed.

In the drawings we have only shown one of the wire cables A, which are secured to the upper and lower braced supports, B and C, respectively, and their requisite tension secured by a system of crabs, winches, or other suitable devices. It is to be understood, however, that two of such cables A are employed side by side, and each carrying cars or baskets D, which are suspended from the cables by means of the skeleton-clevis E, in which a series of sheaves, F, are suitably journaled on axle-pins, as shown, said clevises E extending down-

ward close to the cables A, to guide the sheaves F and prevent their derailment.

At the upper terminus of the apparatus the winding-drum G, which may be provided with any suitable brake attachment, is journaled in the braced frame-work G'. The draw or check ropes H, which are connected to the cars D, are wound around the drum G in reverse ways, so that the descent of a loaded car on one of the wire cables A will cause the ascent to the loading-point of the emptied suspended car on the other adjacent wire cable, said check-ropes H passing over the guide-roller I to the drum G.

In rope railways of this class as previously constructed no means were provided for preventing the bellying or sagging from the main wire cables of the check ropes connecting the suspended cars and the winding-drum, which sagging would quite overcome the gravity of the descending loaded car when at a point opposite the ascending car on the adjacent cable and bring both cars to a stop, and consequently compel the use of power other than the gravity of the loaded car to lower the latter to the discharging-point. We overcome this usual difficulty by supporting the check-ropes H in a line about parallel with and adjacent to the main wire cables. The means we employ to this end consist, in the present instance, of a series of small sheaves, a, which travel on the wire cables A, said sheaves a being supported on axle-pins b, which are journaled in the clevises d, which depend from the cable A a sufficient distance to support a second series of sheaves, e, on which the check-ropes H rest, and are thus held adjacent to the cables A.

Referring to Fig. 1, it will appear that the sides of each clevis d converge at their lower ends, at which points the connecting-chain h is rigidly fastened to hold the sheave-blocks a e a proper distance apart to properly support the check-ropes H, the upper end of said chain h being made fast at any convenient point to the upper frame-work of the apparatus. By the ascent of the emptied car these sheave-blocks a e, always supporting the check-ropes H adjacent to the cables, will be consecutively bunched together next the clevis E, their connecting-chains h hanging in successive loops from the ends of the clevises d; and on the de-

scent of the loaded cars by their gravity the sheaves *a e* will also follow said cars by their gravity, meanwhile supporting the check-ropes H adjacent to the cables A. The sagging of said ropes H is thus prevented and the loaded car D will be free to descend all the way to the lower discharging-point by its gravity alone, without the aid of any auxiliary power. The lower sheave-blocks, *e*, are not a necessary part of the check-rope-supporting devices, as said check-ropes may run over fixed pins, connecting the sides of the clevises *d*—as, for instance, the axle-pins *e'*; but we prefer to avoid unnecessary friction and wear of the check-ropes, and consequently use the said sheaves *e*, as shown.

To load the suspended conveying-cars D at the upper end of the apparatus from tramway-cars K, we employ a tilting platform or tippie, J, having thereon a continuation of the car-track *i*, which may lead from the interior of a mine or other distant point. The forward ends, *i'*, of the track on the "tippie" are upturned, so that when the tail-board or loose end of the car K is removed, and the truck-wheels of the car brought against the upturned end *i'*, its contents may be readily dumped into the suspended car D by tilting the tippie, as shown in Fig. 3, after which the weight J' will act to again swing the tippie J and car K to a horizontal position, when said car K may be run back off the tippie to receive another load.

The means we employ to automatically dump the contents of the conveying-car D at the lower terminus of the apparatus are described as follows:

Referring to Figs. 4 and 5, it will appear that the bottom D' of the car is hinged at one side, as at *l*, the bearings *n* rigidly fixed to the bottom D', supporting the bar M, a portion of which may be bent at proper angle, as at *m*, to permit its outer end to strike the fixed post or bumper O on the descent of the car D. The opposite end of the bar M is slotted at *m'*, to permit the hook-catch *p*, which is rigidly fixed to the body of the car, to engage through the slot *m'* with the under side of the bar M, and

also permit endwise movement of said bar to release it from the catch *p*, to unlock the bottom D' on the contact of the end *m* of the bar with the bumper O. Said unlocking movement will allow the bottom D' to swing open downward on its hinges *l*, as in dotted lines, Fig. 4, to discharge the contents of the car D into any car or vehicle R at the lower end of the apparatus. A chain, *r*, acts to limit the swinging movement of the bottom D', as shown. Our apparatus is thus adapted to receive, convey, and discharge coal, earth, rock, or other material at a minimum cost for construction, operation, and repairs.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The method of preventing the sagging of the check-ropes, which consists in supporting the said check-ropes on independent clevises on the main cable, and in having said clevises connected by a flexible connection, whereby the clevises will spread apart to support the check-ropes as fast as the latter unwind, as set forth.

2. The within-described rope railway, consisting of a pair of inclined wire cables held at proper tension at their upper and lower ends, and carrying suspended cars or baskets, the draw or check ropes of which are supported on traveling clevises that run on the main cable, substantially as specified.

3. In combination with the main cables A and check-ropes H, the traveling clevises *d* and chain *h*, substantially as and for the purposes herein set forth.

4. The combination, with the car D, provided with the hinged bottom D' and the catch *p* and the bumper O, of the sliding bar M, provided with the bent extension *m* and slot *m'*, substantially as and for the purpose set forth.

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