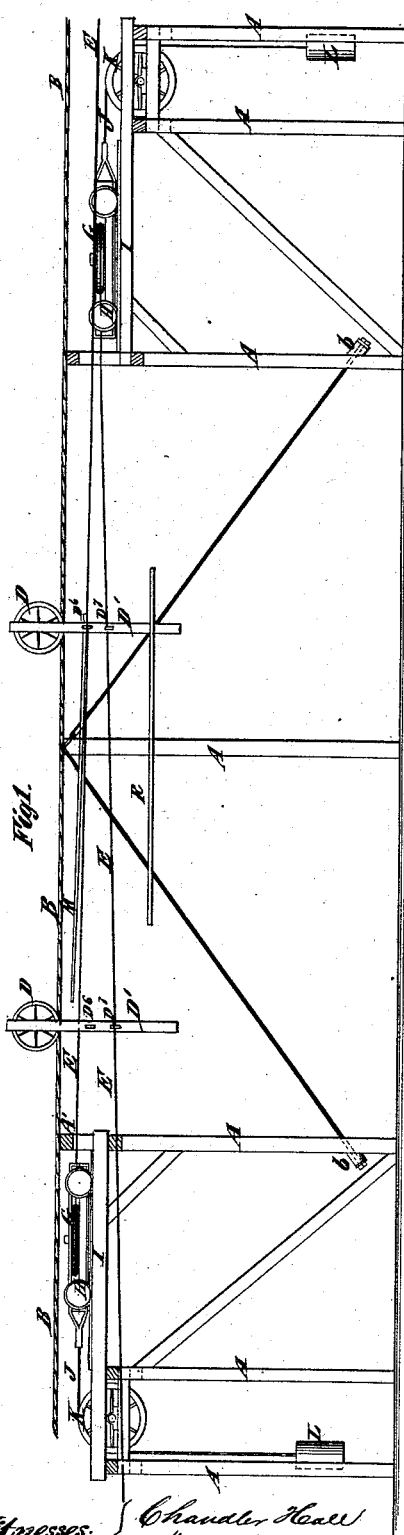


C. F. DODGE.
Wire-Rope Railway.

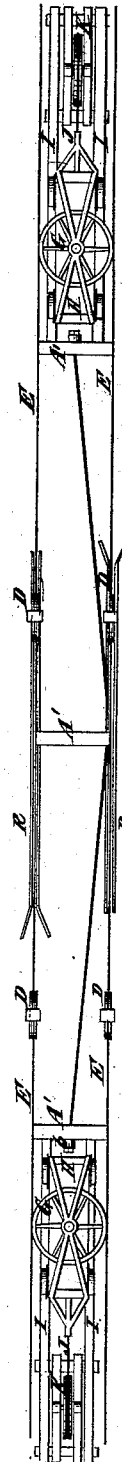
No. 215,586.

Patented May 20, 1879.



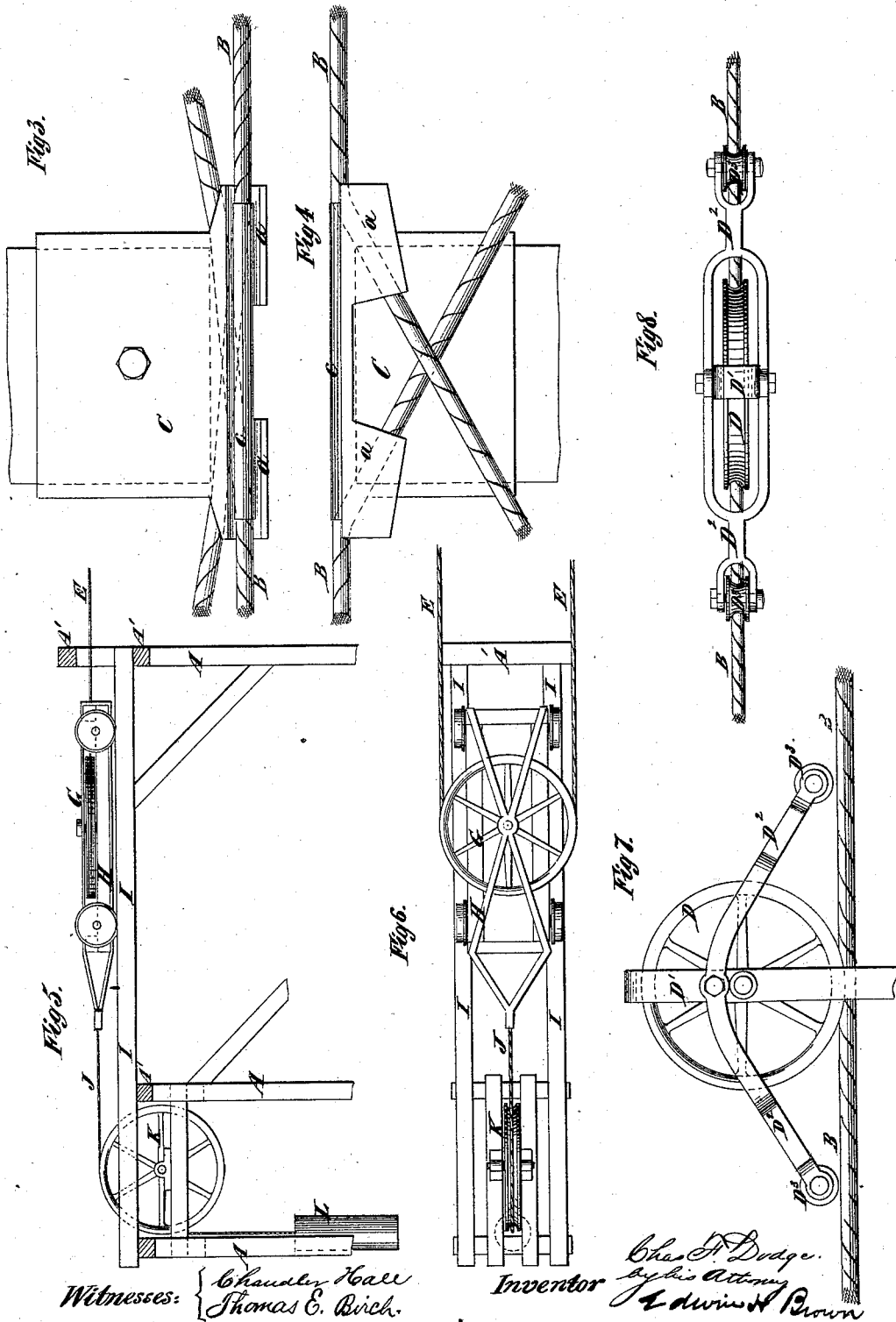
Witnesses: { Chandler Hall
Thomas E. Rich.

Fig. 2.



Inventor: Chas. F. Dodge.
by his Attorney,
Edwin D. Brown.

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Wire-Rope Railway.
No. 215,586. Patented May 20, 1879.



UNITED STATES PATENT OFFICE

CHARLES F. DODGE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN WIRE-ROPE RAILWAYS.

Specification forming part of Letters Patent No. **215,586**, dated May 20, 1879; application filed February 27, 1879.

To all whom it may concern:

Be it known that I, CHARLES F. DODGE, of Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Railways, of which the following is a specification.

My improvements relate to a railway wherein are two continuous rails, a series of travelers for carrying articles to be transported, and a rope or cable for operating such travelers.

My improvements consist in a novel construction of the railway proper, whereby a series of cables employed as rails and rendered practically continuous serve to brace the substructure; furthermore, in means whereby the travelers may be disengaged from and engaged with successive sections of a transmission rope or cable automatically; furthermore, in a safety device for precluding the travelers from falling from their supporting cable-rails in case of the breakage of their pulley-shafts.

In the accompanying drawings, Figure 1 is a side view of a portion of a railway embodying my improvements. Fig. 2 is a plan thereof, with the omission of the supporting cable-rails. Fig. 3 is an enlarged plan of a chair employed in connecting the sections of cable-rails. Fig. 4 is a side view thereof. Fig. 5 is a side view, also enlarged, of my tension device. Fig. 6 is a top view thereof. Fig. 7 is a side view of a portion of cable-rail and a traveler supported thereon, illustrating my safety device. Fig. 8 is a plan thereof. Fig. 9 is a side view of a traveler and a device for lubricating it; and Fig. 10 is an edge or front view thereof.

Similar letters of reference designate corresponding parts in all the figures.

A designates a series of posts, supported from the ground in any suitable manner, and furnished with cross-pieces A'. B designates two parallel rails, supported by the posts A, and consisting of cables of metal or other suitable material. Though composed of numerous sections, these rails are each practically continuous, owing to the manner in which I connect their sections.

C designates a chair, (see particularly

Figs. 3 and 4,) which is to be arranged on the cross-piece A' of each of the posts A, or on such of them as may be necessary for connecting sections of the cable forming the rails. These chairs are shown as consisting of metal caps fitting on the cross-pieces A', and provided with angular recesses or guides *a*, through which the sections of cable are passed downward and connected to rods leading to adjacent posts A, (see Fig. 1,) and fastened thereto with a yielding cushion or spring, *b*, of india-rubber or other suitable material providing for expansion and contraction.

It will be observed (see Fig. 3) that the sections of cable, after passing through the chairs, extend laterally as well as downwardly, and hence brace the substructure of the railway, consisting of the posts A and cross-pieces A', transversely.

Between the points where the sections of cable pass through the recesses or guides *a* the chair is provided with a bridge, *c*, coincident with the two said sections, and rendering them practically continuous.

The advantage of using cables for rails is that greater spans can be made, owing to the great lengths in which cable can be obtained as compared with lengths of rigid rods or rails. The cables, when employed as described, also serve the additional purpose of bracing the substructure of the railway.

D¹ designate a series of travelers consisting, essentially, of pulleys D, running on the cable-rails, and hangers D¹, suspended therefrom and suspending the articles to be transported.

Preferably the hangers (see Fig. 10) are extended inward under their supporting-pulleys, so as to not to cant the pulleys over laterally when in use.

In order to obviate the falling of the hangers in case of the breakage or detachment of the pulleys supporting them, I furnish them (see Figs. 7 and 8) above the cable-rails with diverging legs D², furnished with small pulleys or wheels D³ for dropping onto and running up on the rails. These also serve to preclude the travelers from objectionable swinging forward and backward.

E designates a transmission rope or cable

consisting of sections running around pulleys G in proximity to the cable-rails, one half of each section running in one direction and the other half running in the reverse direction, whereby the travelers are impelled along the two cable-rails in reverse directions. At one end these sections are driven through the pulleys, around which they run by means of engines connected in any suitable manner, and at the other ends they are preferably provided with tension devices to keep them taut, precluding them from sagging.

The pulley G connected with the tension devices only have I shown, as in these alone are any of my improvements embodied. These pulleys G are mounted upon and above horizontal wheeled carriages H, running on rails or girders I, arranged between the cable-rails, and the said carriages have attached to them by cords J, passing over pulleys K, weights L, by which said carriages are drawn away from the driving-pulleys, and the sections of transmission-rope are kept taut.

These sections of transmission-rope are arranged in different planes, alternate sections being in the same or approximately the same plane, save as this arrangement may be precluded by variations in the grade of the railway.

The sections lap one another at their meeting ends, as may be readily understood from an inspection of the drawings. (See particularly Figs. 1 and 2.)

The hangers D¹ of the travelers are provided with two arms or crotches, D⁴ D⁵, one above the other, and corresponding in position to the position of the sections of transmission-rope. Combined with each of these arms or crotches D⁴ D⁵ is an elbow catch-lever, D⁶ D⁷, one arm of which may be made to extend over its arm or crotch, to retain a section of transmission-rope therein, and the other arm of which extends laterally outward from the hanger.

The sections of transmission-rope, where they lap one another, diverge, one downward and the other upward on an incline, (see Fig. 1,) so that one of the arms or crotches of each of the travelers' hangers runs under it, and allows the sections with which the hangers are to be engaged to drop into it, crowding the inner arm of the catch-lever aside and dropping under it. (See Fig. 10.)

A rail or bar, M, (see Fig. 1,) inclined upward and arranged suitably with respect to the laterally-extending arm of the catch-lever, which is to be disengaged from a section of the transmission-rope riding along on this rail or bar, is raised, so as to shift its inner arm beyond the arm or crotch with which it is combined, and the section of transmission-rope, owing to its divergence from the other, rises out of the arm or crotch and is freed therefrom. The catch-lever, running free of the rail or bar, resumes a position for engagement with another section.

The sections of transmission-rope are furnished with peripheral projections, represented as consisting of collars N, (shown as split and clamped in place,) whereby the same are engaged with the hangers, so as to propel them. The disengagement of the travelers from one section and their engagement with the next is thus effected automatically.

The arms D⁴ and D⁵ and the elbow catch-levers D⁶ and D⁷ embrace but do not gripe the transmission-rope, and the collars serve to impart motion to the traveler.

To insure the running of the travelers in proper position for their disengagement from and engagement with the successive sections of transmission-rope, I preferably arrange guide-rails R, having diverging ends for the entrance of the hangers of the travelers where the sections overlap one another.

O designates a stationary tank supported on some object above the railway, and containing lubricating material, such as oil. It has two pipes fitted with wicking or other suitable material, which become saturated with the lubricating material and hang over the journals of the travelers' pulley D, so as to wipe or swab over the latter in their transit and lubricate them, thus performing this work automatically.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a railway, the combination of sections of cable forming rails, a connecting piece or chair having angular recesses or guides for said sections, and rods or their equivalents directly connected at one end to a section of cable and at the other end to a distant post comprised in the substructure of the railway, substantially as specified.

2. In a railway, the combination of sections of cable forming rails, a connecting-piece having angular recesses or guides for said sections, rods or their equivalents, and yielding cushions or springs connecting said sections to posts comprised in the substructure of the railway, substantially as specified.

3. In a railway, the combination of a rail, a traveler, overlapping sections of transmission-rope, and means for automatically disengaging said traveler from one section and engaging it with the other section, substantially as specified.

4. In a railway, the combination of a rail, a traveler provided with arms or crotches and catch-levers, two sections of transmission-rope overlapping and diverging from each other, and a rail or bar for shifting one of the levers, so as to free a section of the transmission-rope from the arm or crotch with which said catch-lever is combined, substantially as specified.

5. In a railway, the combination of a transmission-rope provided with peripheral projections, and a traveler provided with an arm or crotch, and a catch-lever for embracing the said transmission-rope without

grasping it, the peripheral projections serving to transmit motion to the traveler, substantially as specified.

6. In a railway, the combination of a rail, a traveler supported thereon, and consisting of a pulley and hanger, and diverging arms provided with pulleys or their equivalents for

running on said rail in case of accident, substantially as specified.

CHAS. F. DODGE.

Witnesses:

EDWIN H. BROWN,
ERNEST C. WEBB.