

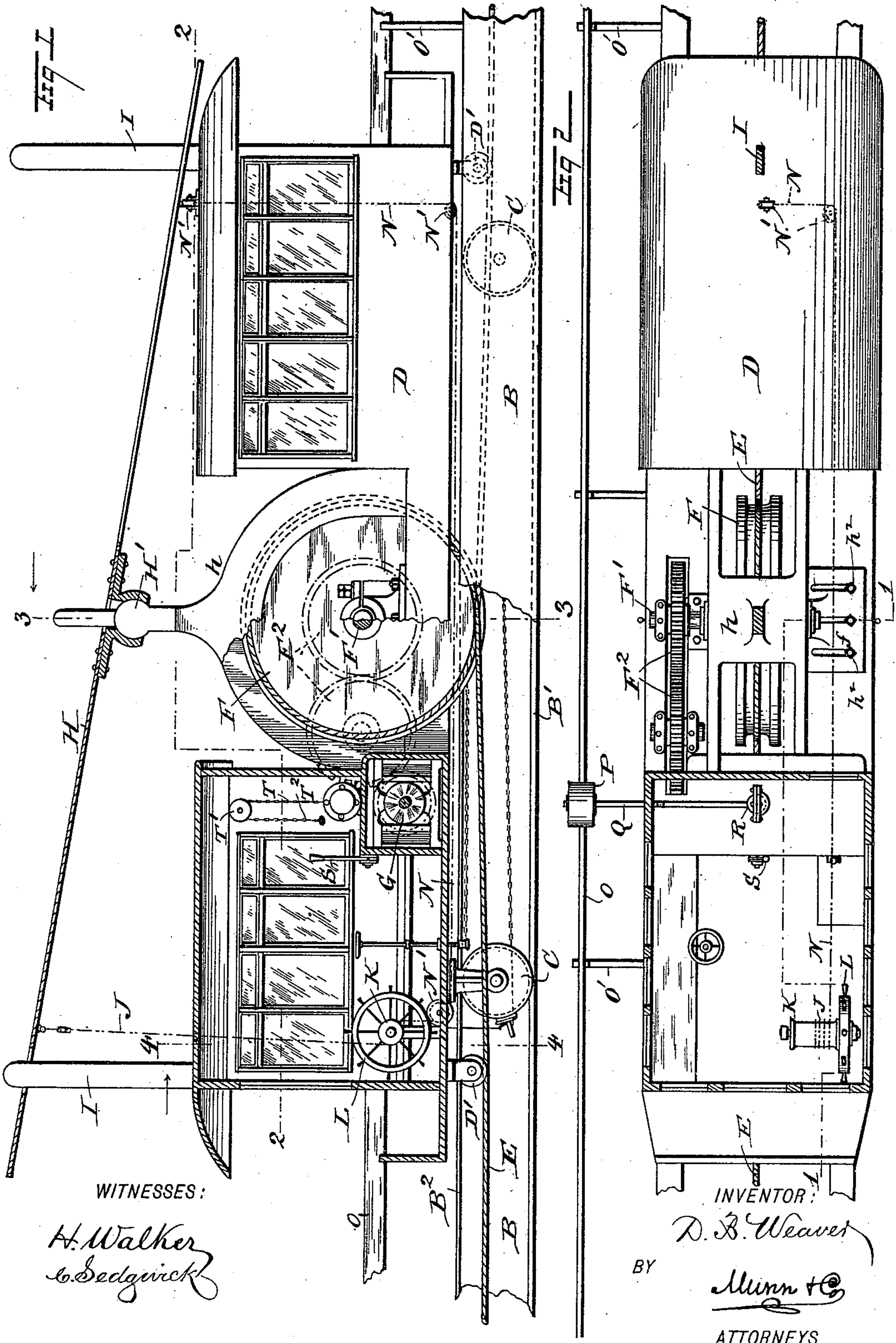
(No Model.)

2 Sheets—Sheet 1.

D. B. WEAVER.
ELEVATED RAILROAD.

No. 447,172.

Patented Feb. 24, 1891.



WITNESSES:

H. Walker
C. Sedgwick

INVENTOR:

D. B. Weaver

BY

Munn & Co

ATTORNEYS

(No Model.)

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Fig 3

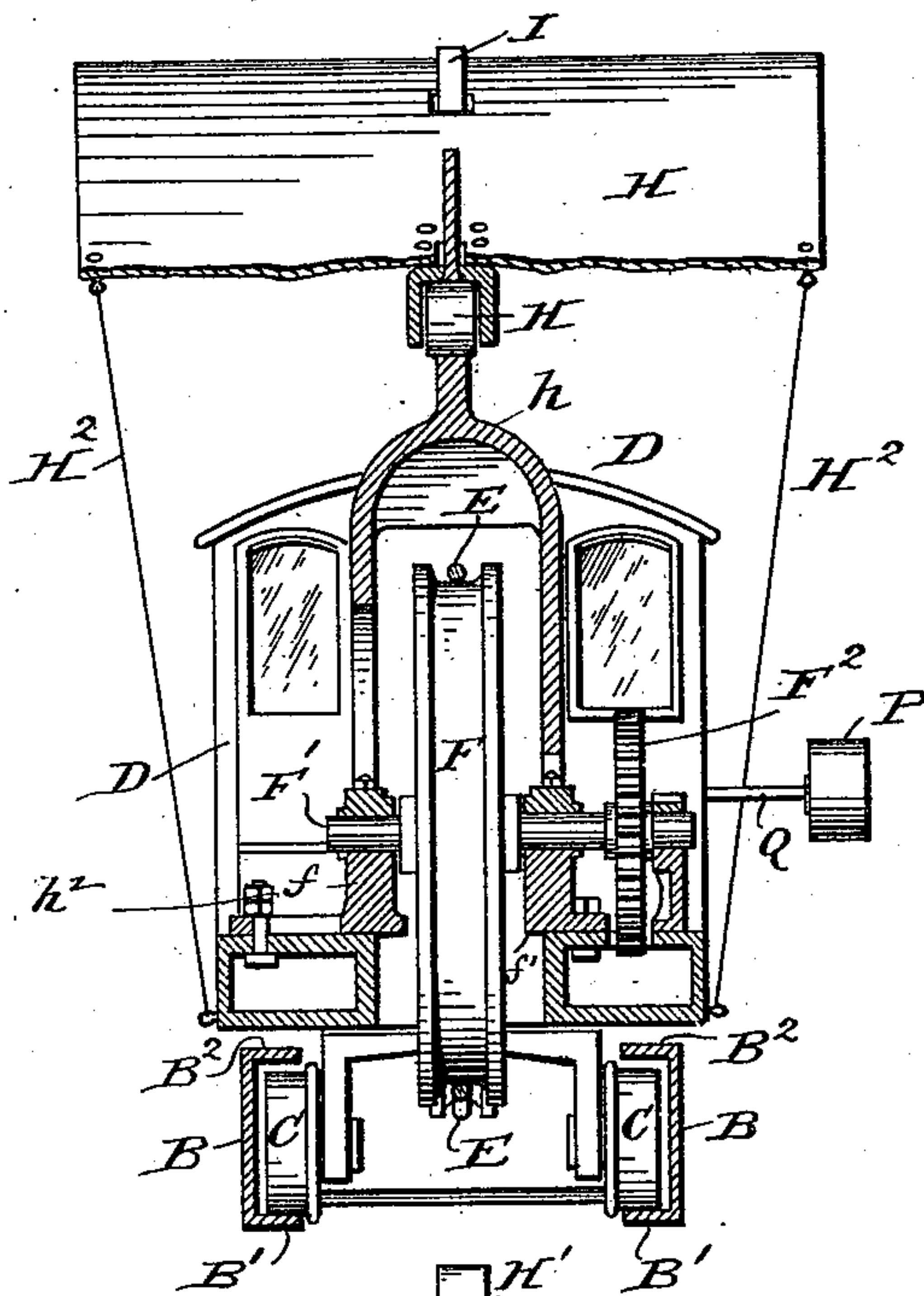
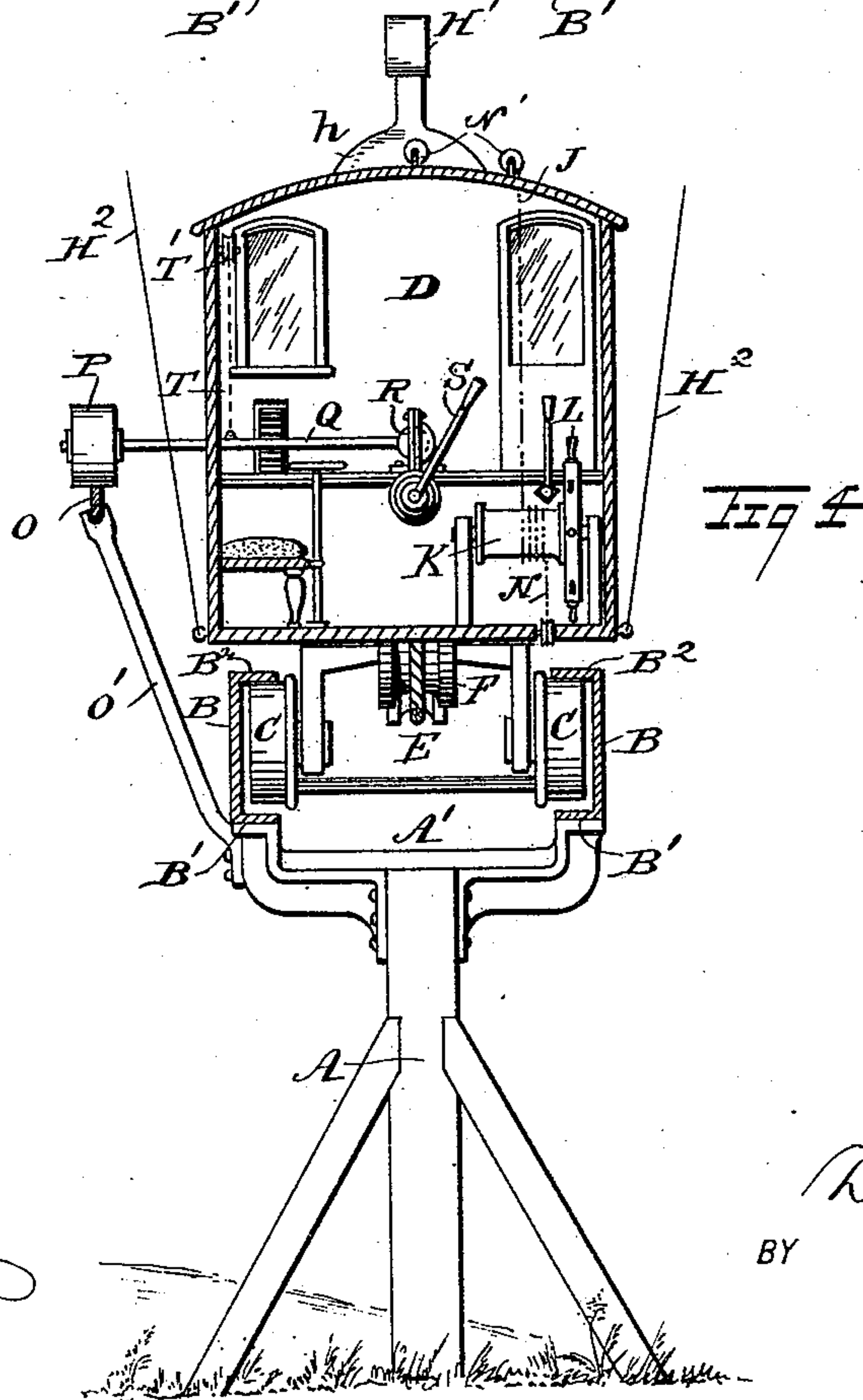


Fig 4



WITNESSES:
H. Walker
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INVENTOR:
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UNITED STATES PATENT OFFICE.

DAVID B. WEAVER, OF HOPEWELL, HUNTINGDON COUNTY, PENNSYLVANIA.

ELEVATED RAILROAD.

SPECIFICATION forming part of Letters Patent No. 447,172, dated February 24, 1891.

Application filed March 1, 1890. Serial No. 342,186. (No model.)

To all whom it may concern:

Be it known that I, DAVID B. WEAVER, of the township of Hopewell, in the county of Huntingdon, (Saxton P. O., Bedford county,) and State of Pennsylvania, have invented a new and Improved Elevated Railroad, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved elevated railroad which is simple and durable in construction, affords rapid transit, and can be built at a very low cost.

The invention consists in certain parts and details and combinations of the same, as will be described hereinafter, and then pointed out in the claims.

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 elevation of the improvement with parts in section on the line 1 1 of Fig. 2. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1, and Fig. 4 is a similar view of the same on the line 4 4 of Fig. 1.

Posts A are erected on the ground in the line on which the elevated road is to be built, each post being provided at its upper end with a head A', supporting at each side longitudinally-extending U-shaped rails B, of which one member B' extends horizontally and rests on the heads A' of adjoining posts, while the middle part of the rail extends vertically on the outside, and the other top member B² extends parallel and in line with the member B', as plainly shown in Figs. 3 and 4. Between the members B' and B² of each rail are adapted to travel the wheels C of a car D, sufficient space being left between the wheels and the members B' and B² of the rail to permit the car D to travel with its wheels either on the lower member B' or on the top member B² of the rails B.

Between the rails is held a cable E, extending along the line of the railway and fastened at its ends to suitable posts or other means. The cable E is passed once or twice around a drum F, secured on a shaft F', mounted to turn in bearings f f in the middle of the car

D, said shaft F' being connected by a train of gear-wheels F² with a motor G of any approved construction, preferably an electric motor, so that when the latter is set in motion a rotary motion is imparted by the train of gear-wheels F² to the shaft F' and the drum F, which winds up one part of the cable E and unwinds the oppositely-extending part, whereby the car is propelled according to the direction in which the drum F is rotated.

To facilitate the removal or applying the cable to the drum, the housing h, arranged over the same, is provided with an opening h' in one side, and the bearing f is made laterally adjustable by means of slots in the bearing and the bolts h², so that by moving the said bearing outward until it is disengaged from the journal of the drum the cable can be readily applied or moved, after which the bearing is returned to its position and secured in place by the bolts h².

The car D is provided with suitable compartments for passengers, for baggage, mail, &c., and is also provided with suitable braking mechanisms for braking the wheels C in order to stop the forward motion of the car.

Above the top of the car D is arranged a plate H, fulcrumed at its middle at H' to a suitable bearing erected over the housing of the drum F. The ends of this plate H are guided on posts I, erected on top of the car D, and the said plate can be swung into a horizontal or inclined position, so as to cushion the rebound caused by the inequalities of the track or by an obstruction on the track, and also to prevent heating of the journals by causing an upward pressure of the car, thereby relieving the journals partly of the weight of the car. Aside from this the said plate also serves as an awning to protect the car from the sun and weather.

One end of the plate H is connected with a rope or chain J, which extends downward into one of the compartments of the car D and winds therein on a drum K, journaled in suitable bearings in the car and provided with a hand-wheel L for turning the drum K. On this drum also winds a second rope or chain N, which extends downward and passes along the under side of the bottom of the car over suitable pulleys N', to extend at the op-

posite end of the car up through the same to connect with the end of the plate H opposite the fastening for the rope J. Thus when the rope J winds upon the drum K the other rope N unwinds from the same, and vice versa.

Now when the operator desires to move the plate H from the inclined position shown in Fig. 1 to a horizontal position he turns the hand-wheel L, so as to wind up the rope J and to unwind a corresponding quantity of the rope N. The rope J exerts a pull on the plate H, which thus swings downward until a horizontal position is reached. When the operator then desires to incline the plate H in either direction, he turns the hand-wheel L accordingly, so as to wind up or unwind the ropes J and N, respectively. In order to transmit the necessary electricity to the motor G, an insulated rail O is secured on suitable brackets O', secured to the heads A' of the several posts A. This rail O is connected with an electric station which supplies the necessary electricity to the said rail O to operate the motor G.

The transmission of the electricity from the rail O to the motor G takes place in the following manner: A wheel P is adapted to travel on top of the rail O and is secured on a shaft Q, extending inward through one side of the car D, and is pivotally connected at its inner end by a ball-and-socket joint R with the motor G. The shaft Q is further supported by a chain T, which extends upward and passes over a pulley T', the downwardly-hanging end of the chain carrying a weight T², which counterbalances the shaft Q and its pulley P. When the car D rises by the action of the wind on the plate H, the said pulley P is always held in contact with the rail O as the shaft Q, carrying the said pulley, swings freely, the ball-and-socket joint R permitting such movement.

The middle of the plate H is braced at its sides by suitable braces H² fastened to the body of the car D. The motor G is provided with a starting, stopping, and reversing mechanism S of any approved construction.

The operation is as follows: The electricity being supplied to the rail O, the motor G is operated by the electricity transmitted from the rail through the wheel P, the shaft Q, and the joint R. The operator in charge of the car starts and stops the motor G in the usual manner, and when started the motor rotates the drum F, which winds up part of the cable E, thus propelling the car in the forward direction. The operator also, according to the

speed of the car, sets the plate H into an inclined position, so that the resistance of the air on the under side of the plate H tends to elevate the car, and thereby relieve the axles of a part of their weight. By means of the U-shaped rails, the flanges of which are a little farther apart than the diameter of the wheels, any tendency of the car to leave the track is prevented by the wheels coming in contact with the upper flanges of the said rails. When the car approaches or has reached the station, the operator actuates the starting and stopping mechanism S of the motor G, so as to cut off the electricity from the rail O to the motor G, at the same time applying the brakes to the car in the usual manner, so that the car comes to a standstill.

It will be seen that this railroad can be built very cheaply without any previous grading or other preparation of the land over which the road is to pass.

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

1. In a cable railway of the character described, the combination of a drum, bearings for the same, one of which is laterally adjustable, and a housing for the drum having an opening in one side, substantially as and for the purpose set forth.

2. In an elevated railroad, the combination, with a car, of a plate held above the top of the car and pivoted in its middle to a suitable bearing on the said car, substantially as shown and described.

3. In an elevated railroad, the combination, with a car, of a plate held above the top of the car and pivoted in its middle to a suitable bearing on the said car, and guide-posts held on the ends of the said car and passing through the ends of the said plate, substantially as shown and described.

4. In an elevated railroad, the combination, with a car, of a plate held above the top of the car and pivoted in its middle to a suitable bearing on the said car, guide-posts held on the ends of the said car and passing through the ends of the said plate, ropes connected with the ends of the said plate, and a drum mounted in the said car and adapted to wind up or unwind the said ropes to change the position of the said plate, substantially as shown and described.

DAVID B. WEAVER.

Witnesses:

ALEXANDER PORT,
HUGH LINDSAY.