

(No Model.)

E. P. USHER.
CHARGING TABLE FOR ELECTRIC RAILWAYS.

No. 471,447.

Patented Mar. 22, 1892.

Fig. 1.

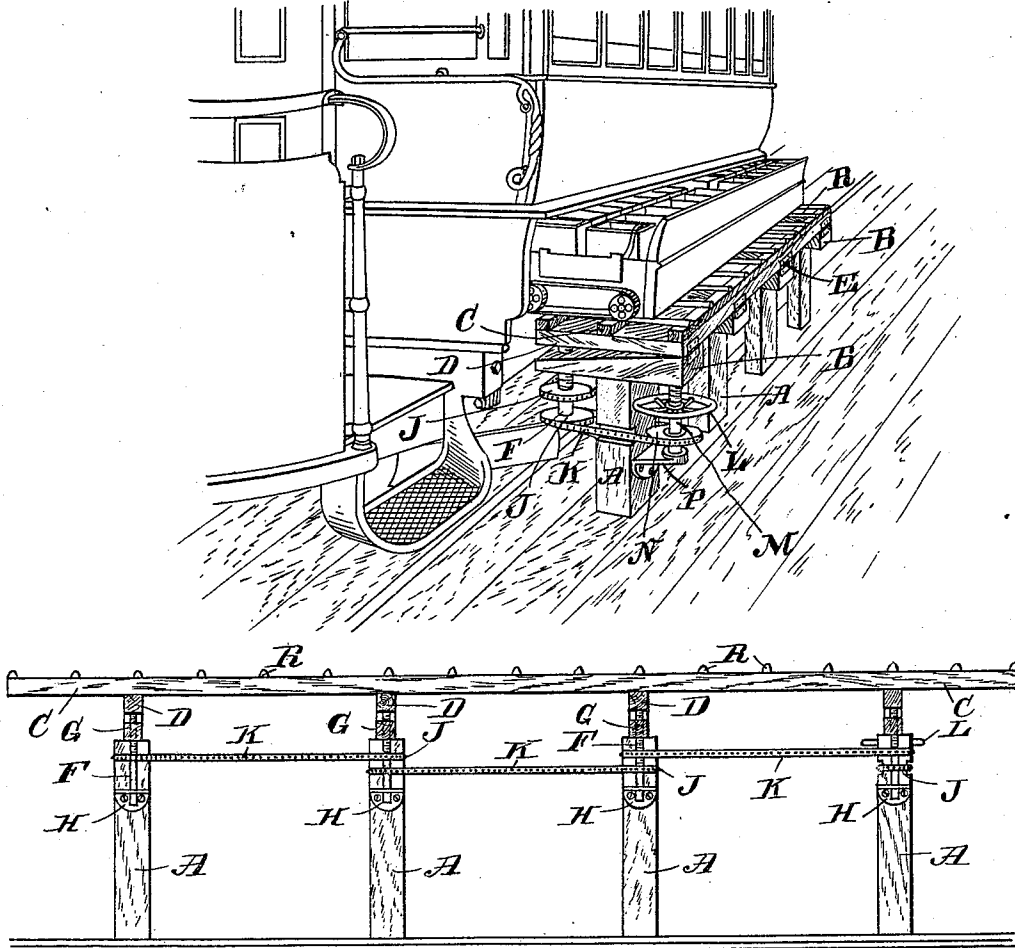
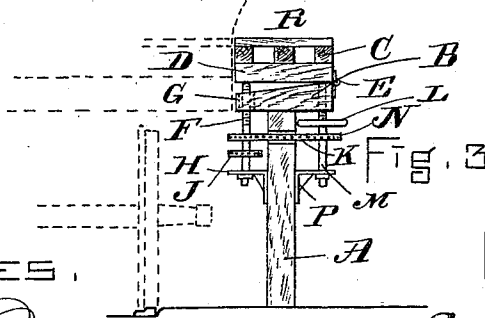


Fig. 2.



WITNESSES.

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CHARGING-TABLE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 471,447, dated March 22, 1892.

Application filed August 31, 1891. Serial No. 404,187. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. USHER, of Grafton, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Charging-Tables for Electric Railways, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of this invention is to provide greatly-improved means for quickly and conveniently charging and discharging storage-batteries from the car-bodies with which they are to be or have been used, so as to facilitate this necessary work and lessen the time and labor heretofore required in it.

My invention is embodied in vertically-adjustable tables adjacent to the track on which the car to be supplied is placed, such adjustment being necessary in order to bring the edge of the table which is contiguous to the car into the same plane as the part of the car which is to receive the battery or from which the exhausted battery is to be removed onto the table, the height varying in different cars of the same line and in the same car under different conditions of use.

My invention further consists in the combination, with said table, of the described devices for actuating it, whereby simultaneous movement of the adjusting-screws is secured.

In the drawings, Figure 2 is a side elevation of my improved table, and Fig. 3 an end view thereof, while Fig. 1 is a perspective view of the apparatus and part of a car, showing the method of transferring batteries.

A A represent square timbers or posts set vertically and very firmly into the ground in a line parallel with and near to the car-track at the point where the several cars are to discharge exhausted batteries and receive fresh ones.

B is a horizontal cross-piece secured firmly to the top of each of the posts A and projecting beyond such post, as in Fig. 2. The parts A B thus constitute a rigid support for the apparatus mounted thereon.

Above the cross-pieces B is the adjustable table, consisting of longitudinal timbers C and transverse bars D, united at each intersecting point. The edge of this table most re-

mote from the car-track rests upon the cross-pieces B, and the transverse bars D are connected thereto by hinges E, the cross-pieces being made somewhat tapering, as shown, to allow for vertical adjustment of the free edge of the table. The free end of each transverse bar D of the table rests upon and is adjustably supported by the point of a heavy machine-screw F, so that the edge of the table nearest to the car-track may be raised or lowered at will by the rotation of said screw, the threads of which engage with a nut G, sunken in the upper surface of each cross-piece B. (See Fig. 3.) The unthreaded stem of each screw F has a guide or lateral support furnished by a bracket H, through which it passes, such bracket being fixed to the vertical post A, as in Fig. 2. Rotation of the several screws F is effected by suitable mechanical means adapted to actuate them all in the same direction simultaneously, so as to raise or lower at once all the cross-pieces B, and thus adjust vertically the edge of the table which is to receive or deliver the batteries. The means best adapted for this purpose are illustrated in the drawings. Below its threaded part the screw F is furnished with two sprocket-wheels J, with which engage the links of drive-chains K, running to similar wheels on the adjacent screws, so that when one revolves all the others must move similarly. All are actuated by a single hand-wheel L, fixed on a vertical shaft M, having a sprocket-wheel N, from which a drive-chain runs to a like wheel on one of the screws F.

The shaft M of the hand-wheel is represented as rotating in bearings formed, respectively, in the end of the cross-piece B and in a supporting-bracket P. One of these bearings is screw-threaded, as is the corresponding part of the shaft M, so that the sprocket-wheel N will rise and fall with the like movements of the wheel J, to which it is connected.

In practice these tables will be erected in pairs, one on each side of the track at the charging-station. The car to be charged is run into position between them after the sides are let down to open externally the spaces under the seats where the batteries are carried. The free edge of the table A B is ad-

justed up or down by turning the hand-wheel and actuating the screws F. When the table edge is at the proper height, the exhausted or partially-exhausted batteries upon the car 5 are slid upon ways or skids R from the car onto the table. Then the car is moved forward opposite to the fresh batteries to be taken up, and these fresh or newly-charged batteries are similarly transferred from the 10 table to the vacated space on the car, where they rest on cleats or ways corresponding to those on the table. As a tray of cells weighs several hundred pounds and the combined trays on a single table weigh more than a ton, 15 the convenience in handling them afforded by my improvement is readily apparent.

By this simple apparatus one man can speedily transfer the batteries from and to a car. Having first removed or let down the 20 movable part of the car side, he will by means of the hand-wheel adjust the table edge to the exact height to receive the battery to be discharged, then draw it from the car to the table, run the car somewhat forward to a 25 point opposite the fresh battery, readjust the table vertically, if required, and slide the battery into place on the car. By no prior appa-

ratus known to me could one man do this work, nor could several men do it so expeditiously.

I claim as my invention—

1. The described charging-table, comprising permanent supports adjacent to the car-track and a top adapted to receive the batteries, such top being hinged at one edge and provided with means for adjusting the opposite edge of the table-top vertically to correspond with the battery-recess of the car, substantially as set forth. 30 35

2. The described charging-table for transferring car-batteries, consisting of supports A B and movable top C D, in combination with the hand-wheel L, the series of adjusting-screws F, and connecting means for rotating said wheel and screws simultaneously, substantially as and for the purpose set forth. 40 45

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of August, A. D. 1891.

EDWARD P. USHER.

Witnesses:

WILLIAM E. ROGERS,
A. H. SPENCER.