

**THE BONNER RAIL WAGON.**

In the very earliest days of railroading it was customary for the traveler to drive up to the railroad station in his own private coach, and have said coach and its passengers transferred to one of the railroad wagons, which would be coupled to the train and take the coach and its occupants to their destination. Probably our readers will have seen some of the prints showing the pioneer trains in England, in which three or four private coaches of the kind that ran upon the highways in an early day are shown mounted upon railroad trucks and making the journey as part of the train. For obvious reasons, as railroad passenger traffic increased, the practice was discontinued: but the custom left its imprint upon the standard passenger "coach" of the English roads, which for many years bore a close resemblance to the stage coach of highway travel. For the carrying of freight, however, this custom of transporting the vehicle and its load entire still exists in England in the matter of furniture removal, the furniture vans being run onto special trucks at the railway yard and carried by rail to the desired town, a system which saves two rehandlings, and enables household goods to be loaded at one home, carried for hundreds of miles, and unloaded at another home without the door of the furniture van being once unlocked.

The accompanying views of the Bonner Rail Wagon represent a very successful attempt to cheapen the transportation and handling of freight in connection with the electric trolley roads which have become such an important feature of modern transportation. The wagon has been designed to enable a load of freight to be hauled by teams to the nearest electric road, carried by the same to the village or town to which it is consigned, and then hauled to the particular consignee, all without rehandling, the load remaining unbroken in the wagon from the time it is loaded until the time it is discharged. The vehicle is really a combined road wagon and railway truck, animal power being used in the streets or on the highways, and electric, steam, or other motive power being substituted on the rail trucks. The combination vehicle is patterned after the best form of farm or city freight wagon. It is supplied with the usual, but in this case particularly substantial, running gears, and it is built with a carrying capacity of from 2 to 8, or even 10 tons, according to the character of the freight to be hauled. For service on the streets or highways it is provided with the ordinary wide-tire road wheels, but when trans-

ferred to the rails it is carried on a special rail truck of the proper gage of the railroad.

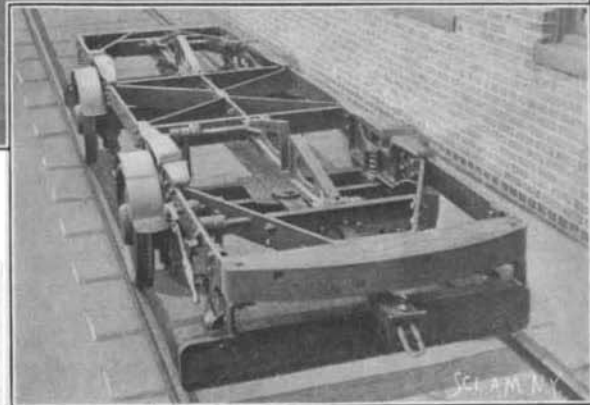
The truck which is shown in Fig. 2 consists of a stout and well braced frame carried upon two axles and provided with two pairs of stops which are located in

The wagon is hauled by the teams onto the driveway, where the axles engage the stops of the truck; and as the wagon descends the driveway the axles settle upon the truck in their proper position, the road wheels swinging clear of the ground and leaving the wagon entirely supported by the truck, as shown in Fig. 3. The rail wagon can now be hauled by an electric car to its destination and, if desired, a regular train of four or more vehicles can be made up in this way.

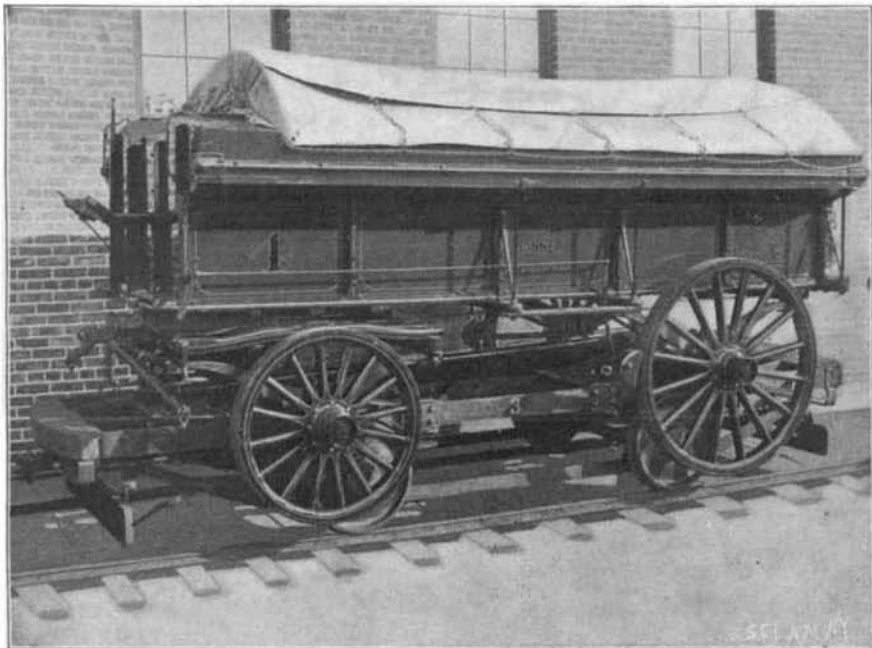
The advantages of the system are many and obvious. It secures a large saving of time and expense in loading and unloading, and, what is even more important, the freight can be hauled not only at greater speed, but at considerably less cost on the tracks than it could be hauled by teams on the roadway. The system has been designed by Col. Joseph C.



1.—RAIL WAGON HAULED UP INCLINED PLANE, CLEAR OF TRUCK.



2.—THE TRUCK, SHOWING RAIL WAGON STOPS AND LEVERS TO OPERATE SAME.



3.—RAIL WAGON MOUNTED ON TRUCK.

of the truck. At each transfer station on the electric line an inclined driveway is arranged, which is of the same gage as that of the wheels of the road wagon, the tracks of the driveway being placed on the outside of the tracks of the electric line, as shown in Fig. 1.

positions corresponding to those occupied by the axles of the road wagon when it is in place on the truck. The stops are operated by hand levers, one of which will be noticed at the side

of the truck. At each transfer station on the electric line an inclined driveway is arranged, which is of the same gage as that of the wheels of the road wagon, the tracks of the driveway being placed on the outside of the tracks of the electric line, as shown in Fig. 1.

Bonner, of Toledo, Ohio, where it is in successful operation, the mileage covered to date being considerable. Contrary to the expectations of the railway managers, who supposed that electric railroads would be confined to the handling of small parcel packages in the way of express business, the freight carried by the wagon train service at Toledo, and also at Detroit, Michigan, shows that the shipments average in weight over 400 pounds each, and that they frequently aggregate from 4 to 8 tons bulk loads.

Our illustration, Fig. 4, shows a rail wagon train at Laxey Glen, Isle of Man. The length of the Isle of Man Tramways line over which the rail wagons operate is about 25 miles. The line is a continuation of curves and inclines, with gradients as steep as 1 in 24. A large amount of the freight traffic consists of hauling granite from quarries owned by the tramways company to the shipping dock. The rail wagons convey each load of 6 tons direct from the quarries to the dock, whereas hitherto it has been the custom to cart the granite to and from the railway cars in one-horse two-wheeled carts, the average load being 1,700 pounds. The Rail Wagons and Trucks are manufactured by the Bonner Rail Wagon Co., of Toledo, Ohio.

U. S. Naval Attaché Beehler, who attended the first annual meeting of the Society of Naval Architects at Berlin, expresses the opinion that the German Department of Naval Construction is now superior to the naval schools at Glasgow and Paris, and advises the United States government to send our naval constructors there rather than to Great Britain and France.



4.—RAIL WAGON TRAIN AT LAXEY GLEN STATION, ISLE OF MAN.