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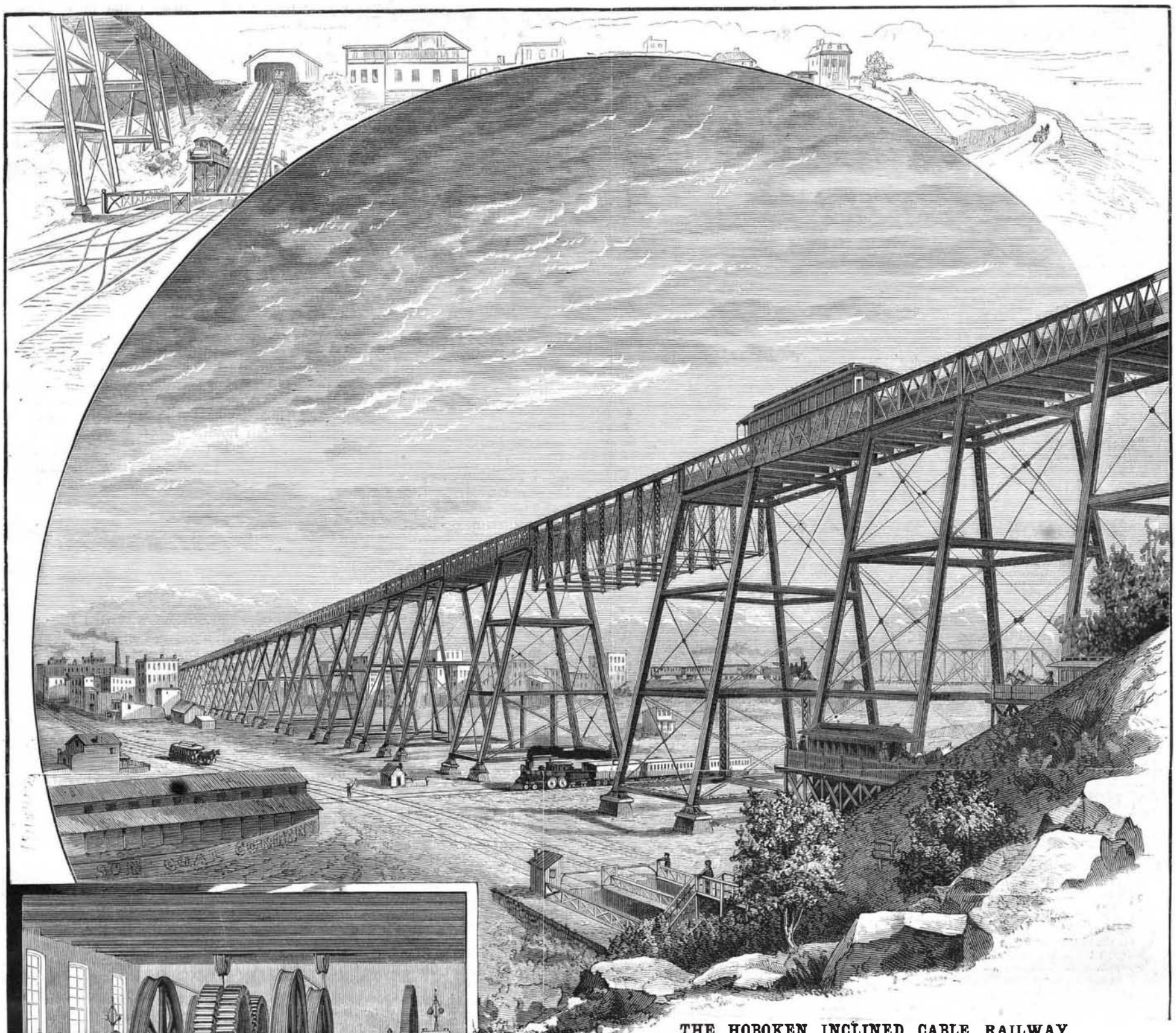
THE HOBOKEN INCLINED CABLE RAILWAY.

The southern end of the Palisades, with its steep and rugged sides, has always presented a formidable obstacle in the path of the horse car railroads of Jersey City and Hoboken. Steam railroads overcame the difficulty by tunneling and open cuts, their main object being to pass the hill; but the horse cars, having to mount the hill to accommodate residents upon the Heights, were of course compelled to resort to other means. Twenty years ago dummy engines were tried on the routes leading from Hoboken ferry, but the grades proved to be too steep, and they were abandoned. Horses, four to a car, were again employed, and it took twenty minutes to reach the top of the hill from the ferry, a distance of only one mile. In 1873, the North Hudson County Railway Company concluded to construct a short but steep inclined plane, and to elevate both cars and horses by stationary steam power. A car and horses arriving at the foot of the hill passed on to a large and substantial truck and were drawn up the incline, 400 feet long and 100 hundred feet high, in one minute. This was the first horse car elevator either in this country or Europe. It has been in continuous operation ever since completion, and has never failed to work or caused an accident.



THE HOBOKEN INCLINED CABLE RAILWAY.

The truck, or elevator platform, is triangular in shape; the hypotenuse is provided with four sets of wheels, which run up a track extending up the incline. When at rest, the horizontal side of the truck is on a level with the main track, either at the bottom or top of the hill, and is of sufficient length to receive a car and horses. There are two of these trucks, one upon each track. Two wire ropes lead from each car around drums operated by engines at the top of the hill. The cables are so arranged thatone truck passes up while the other is going down. A third cable, attached to each truck and passing around sheaves at the top of the hill, serves as a safeguard in case either set of hoisting cables should break.

The travel increased to such an extent as to make necessary the providing of additional facilities for mounting the hill. It was therefore concluded to build the elevated railroad shown in our frontispiece. This easily accommodates all the travel, and also shortens the time to the top of the hill from ten minutes to five.

The most difficult task was to secure proper foundations for the posts. Soundings made between the ferry and hill showed the solid bottom to be from 20 to 90 feet below the meadow. At no point could a firm foundation be secured without piling. The higher part of the structure rests on towers 50 feet wide at the base and 22 feet wide at the top. Each of the four corner posts is set in heavy castings which rest on bluestone and brick piers 10 feet square at the bottom and 4 feet square at the top; these piers are built upon cross timbers which hold together clusters of 16 or 20 heavy piles. The foundations for the ordinary posts on the level part of the structure are of a similar character, but not so heavy. The strncture is entirely of iron. The tracks are of 67 pound steel rails, not laid on wooden cross ties, but on white oak

(*Continued on page* 116.)