

THE FIRST PROPOSED ELEVATED RAILROAD FOR NEW YORK.

In the accompanying cut we publish a view of an elevated railroad for New York which is reproduced in facsimile from a comic paper published in 1846.

THE TRAMWAYS OF LAUSANNE.

The idea of the installation of tramways at Lausanne dates back to 1869-1872, that is to say, to the establishment of the Lausanne-Ouchy et Lausanne-Echalleus lines. The honor of it is due to Mr. Gossin, cantonal engineer. The system thought of then was that of Mr. Mekarski, which consisted in the actuating of automobile cars by compressed air. In 1882, Mr. Bergaron, another engineer, thought of exploiting a cable tramway of the Hallidie type in use in San Francisco, not only to do service for Lausanne, but also to radiate in different directions. In 1888, Mr. Vautier was charged with the study of a project based upon the Abt rack and steam propulsion system. The huge size of the engines caused the committee that had proposed the idea to reject it, and the conclusion was reached that the only system admissible in a city like Lausanne was electricity.

In the first project of Engineer Palaz the motive power was to be borrowed from the waters of the Bret, and the generating works were to be established under one of the arches of the great bridge. But as the conditions of this would have been too onerous, it was transferred to the Pontaise, and the choice was limited to either petroleum motors or those using poor gas. Finally, on December 21, 1894, Mr. Palaz obtained from the Federal Assembly the concession of a system subdivided thus:

Urban system comprising the lines: Tour de Ville, L. E. Monsquines station, J. S. St. Francois station, Riponne-Pontaise, Ecole de Medecine-Chailly.

The system comprised also the Monsquines-Lutry line.

Electric propulsion by aerial conductor, contact

trolley and return by rails, prevailed for reasons entirely peculiar to the city of Lausanne. Accumulators were rejected on account of the strong declivities. They would have given rise to considerable dead weight. Steam propulsion, too expensive with so broken a profile, would even have been impossible upon the Chailly and Pontaise sections. The advantage of electric propulsion, such as it has been conceived, is that it permits of the use of light rolling stock and satisfies the exigencies of an active circulation. The only serious motive, moreover, for not taking some other mode of propulsion into consideration was the newness of such systems as those working by

discussions, the latter was the solution adopted. The works decided upon consist of two parts: one of them, fronting upon Saint Martin Street, is 56 feet square, 26 feet in height, and contains the engines, dynamos and regulating apparatus. Its frame is metallic, and a fifty foot rolling bridge of five tons power is arranged in it. The other measures 41 x 37 feet and contains space for three gas generators and accessories. The accumulator room, which is 42 feet in length, 41 in width and 11½ in height, adjoins that of the gas generators. The apparatus for refrigerating the water and cooling the motors are placed at the extremity of the engine room in an annex reserved for them.

The motor using poor gas had the preference. It is supplied by a special gas produced at the works by blowing a mixture of superheated steam and air into what are called gas-generating furnaces. In this way a minimum expense of two ounces of anthracite per horse hour in current service has been reached.

At first there will be installed but two gas generators and two 130 horse power motors, one of which, represented in our engraving, will run, upon an average, from 18 to 20 hours a day. A battery of accumulators, serving as regulator and reserve, will be of about 200 horse power.

The track, which is of 3-28 foot gage, will be formed of Phenix 32 pound rails, laid upon 16 pound metallic ties in the unpaved portions and of 47 pound Phenix rails laid upon ballast and cross-braced in the paved portions.

The feed lines are now subterranean and now aerial. Those of contact are supported by poles or stretching cables.

The car has a capacity for 30 passengers. It is actuated by two electric motors of 20 horse power each, that drive the axle through a single train of gear wheels. It is provided with block brakes, electric brakes, and safety drag brakes acting upon the rails.

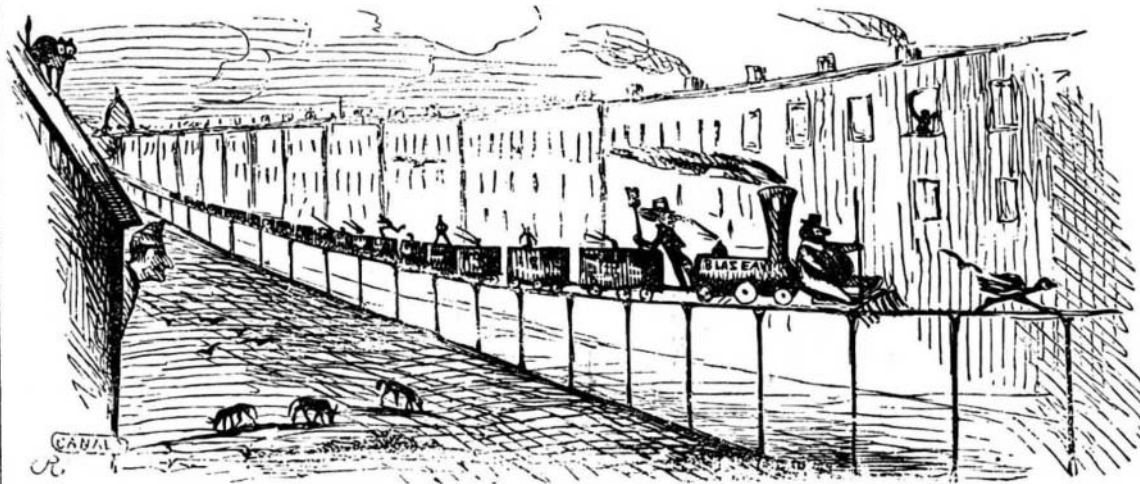
The 39 x 105 foot car houses will receive 20 cars.

The cost of the first establishment, which is doubt-

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YANKEE DOODLE.

BROADWAY RELIEVED OF ITS TRAVEL.



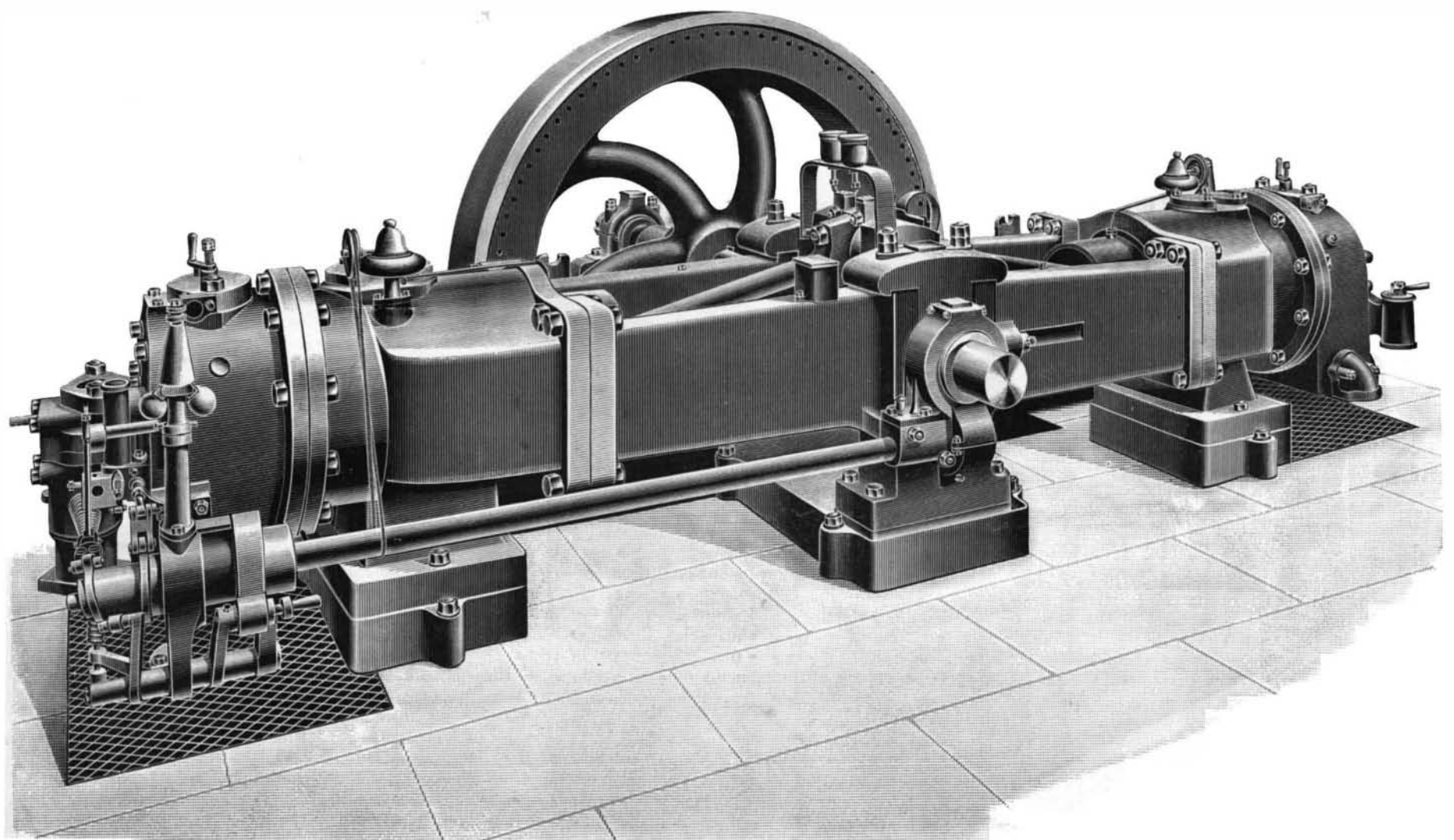
A Report signed "many citizens of Watertown" has recently demonstrated, as far as logic can demonstrate, that, "all things considered, a Plank Rail Road is the most advantageous and *cheapest* that can be constructed over a soil not naturally fitted for road-making." To prevent the mortification of being beaten by an obscure country town, YANKEE DOODLE calls upon the city authorities at once to take this matter in hand—not the road—but the feasibility of adapting it to our thoroughfares. As, by the common practice, Broadway would seem totally unfit for road-making, many dollars might be annually saved to the city treasury, and the wayfarers of that over-crowded artery gratefully relieved of the danger and inconvenience of traveling in omnibuses, by the novel plan set forth above. The road should be constructed of good solid plank, elevated about fifteen feet to admit the passage of the tall turn-outs of the upper ten,—the only turn-outs on the road,—without knocking off the hats of the drivers and footmen; supported in the centre

of the street by locust uprights, which are very durable. Along this elevated plane a double stream of cars might fly with the velocity of a lie on the Magnetic Telegraph wires and without any very great danger to those cautious pedestrians who may take the side-walks. Depots might be established at suitable distances—say one at Trinity and the other at Grace Church, thus uniting the two extremes of Broadway in commerce and piety. A star policeman should be stationed at each end to see that the exercises are not disturbed, and now and then to look into Wallstreet. By this plan, the inhabitants of the upper Wards might just step into Grace Church and hear the singing and arrive at Trinity time enough to hear the text; and after dozing through the sermon, return to Grace in time for the last voluntary. The Magnetic Wires might also be elevated on the plane of the Rail Road, and thus rid Broadway of that picturesque absurdity.

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compressed air, which, however, have been greatly improved, especially by Messrs. Popp and Conti. Then again, there was the matter of fashion, the majority of the Swiss tramways recently constructed being operated by electricity.

It was a question of finding a source of electric energy. Should the hydraulic power of the Jura or Alps be utilized at Lausanne, or should a special generating works be created for the tramways? After long



130 HORSE POWER MOTOR USING POOR GAS—CONSTRUCTED FOR THE CENTRAL STATION OF THE LAUSANNE TRAMWAYS.