

THE LARTIGUE RAILWAY.

The Lartigue railway system is that of a series of cars drawn by horse power or a specially constructed locomotive, running on a single rail elevated a few feet from the ground. The system has been in use since 1883 in several parts of Europe and Africa, and a model line has recently been shown in action near Victoria Street, Westminster. The main features of the system, which is applicable to military, agricultural, or manufacturing lines, are as follows:

The line, which is exceedingly portable, is composed of one rail, of the shape of a flat bar, extremely rigid when subjected to vertical pressure, but easily bent horizontally. This rail is supported above the ground by A-shaped trestles, or frames, made of angle or some very stiff section of iron. The upper extremity of these trestles is bolted to the rail, and the lower extremity rests on the ground, being supported by a bed plate or sleeper, to which the frame is firmly secured. The sleepers may be of different sizes and shapes, and may further be secured in their places when required by long pegs driven into the ground through holes drilled near the extremity of the sleepers, thus preventing the line from shifting. If a river has to be crossed, some light piers can be made, or two wire cables may be stretched across to receive the trestles of the line; while if a ravine has to be traversed, the line can either be carried directly over the gap, or taken down the gorge

by means of a zigzag length, which can be connected by curves of as small a radius as ten feet. Moreover, it is possible to use gradients as steep as 1 in 17. On passenger lines, guardsto prevent the swinging of the cars, and points, sidings, signal, etc., have been introduced, and everything has been constructed with a special eye to simplicity.

The cars are fitted with two grooved wheels, which run on the rails, but are fashioned according to the purpose for which they are intended. The passenger carriages, as well as the locomotives, are fitted with horizontal grooved wheels, which run on side guide lines, attached to the trestles by the side of the main line, thus imparting steadiness. As our sketches show, it has been tried in Russia both for the transport of troops and of military invalids; in the Pyrenees it is used for carrying ore; while its facilities for passenger traffic were tested at the short line at Westminster. It has been shown at various European exhibitions, and is in use at Algeria and Tunis for carrying esparto grass. Indeed, it was while seeking to solve the problem of carrying the grass from the plains to the main

lines of communication that the idea of the single line railway first occurred to the inventor, M. Lartigue, the appearance of a caravan of camels in the distance laden with bags on each side of their humps furnishing the starting point. The advantages claimed for the line are its extreme simplicity and portability. Unevenness of the ground can be balanced by different lengths of trestles, while the motive power can be either electricity, horse traction, or steam. The inventors state that during a trial in Russia, 6 ft. 6 in. were laid down in six minutes by six men, so that a

4 by 8 by $\frac{3}{4}$ angles. Unusually heavy metal, 36 inches deep and 7-16 thick, is used in the floor plates. The midship scantlings are as heavy as if made of ordinary iron, but at the ends of the vessel the sizes have been reduced, and so, with no loss of strength, considerable saving in weight has been effected. The outside plates are five-eighths of an inch in thickness and are flush to three feet below the load water line. Thence to "garboard" she is rated "in and out." The decks are plated to the beams and cross braced diagonally to resist the lateral strains. The wood decking of white

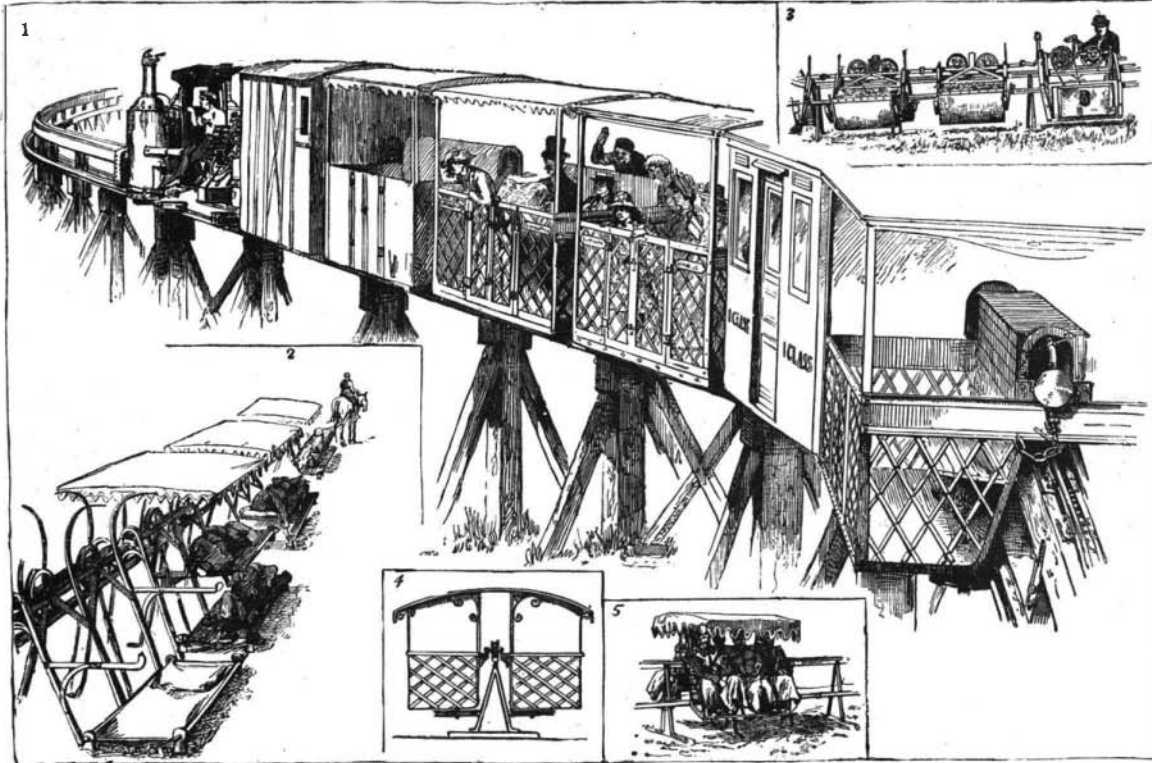
pine is laid on top of this. All the deck houses are of steel plate, built into the deck, covered with teak-wood worked in panels. The bulwark stanchions, plank sheers, coamings, skylights, and all other wooden fittings on the upper deck are also of heavy teak.

The Alva has three masts, with yards on the foremast. When leisurely cruising, she will make a large spread of canvas, which will enable her to economize on coal during a long passage. All the work of construction has been done in the shops of the Harlan & Hollingsworth Company. The engine is of the compound surface condensing type, with three cylinders and three cranks, and is of similar make to those which have proved so successful in the Cunard steamers Etruria and Aurania. The cylinders are set in a fore and aft line, are of 32 and 45 inches diameter, with 42 inches stroke.

The Alva's steel shell boilers, of the Scotch type,

have nearly 5,000 square feet of heating surface, and will supply steam at a working pressure of 100 pounds to the square inch. They are only 10 feet long, the diameter being 17 feet. It is stated at the yard that, as far as diameter is concerned, these are the largest boilers ever constructed in this country, or even in England.

The bed plate of the machinery weighs 16,990 pounds. The magnificent steel shaft, which is incased in brass, is some 10 inches in diameter. The propelling wheel furnishes an exception to the statement that all of the machinery is of American make. It is of manganese bronze, and was cast in Glasgow, Scotland. It measures 13 feet in diameter, weighs 9,632 pounds, and paid Uncle Sam \$1,100 in duties when it came through the Custom House. The coal bunkers of the Alva, which are in the boiler compartment, will carry 300 tons of coal. That the yacht will be equipped with all the latest and most approved appurtenances goes without saying. She will have a steam windlass and steam steering gear that can be operated from the midship bridge. There will be electric lights, bells, speaking



1 Train of the Lartigue Railway at Tothill Fields, Westminster, ascending a Viaduct on an Incline of 1 in 10. 2. Train for the Transport of Wounded Soldiers, at the Russian Guards' Camp, near St. Petersburg. 3. Electrical Train at the Mines of Ria, in the French Pyrenees, carrying Copper Ore. 4. Section of Railway and Third-Class Open Passenger Carriage. 5. View of Carriage for the Transport of Troops, at the Russian Guards' Camp, near St. Petersburg.

THE LARTIGUE ELEVATED SINGLE RAIL RAILWAY.

mile could be completed by thirty men in eight hours. In this instance the line was raised 3 ft. 3 in. above the ground.—*London Graphic*.

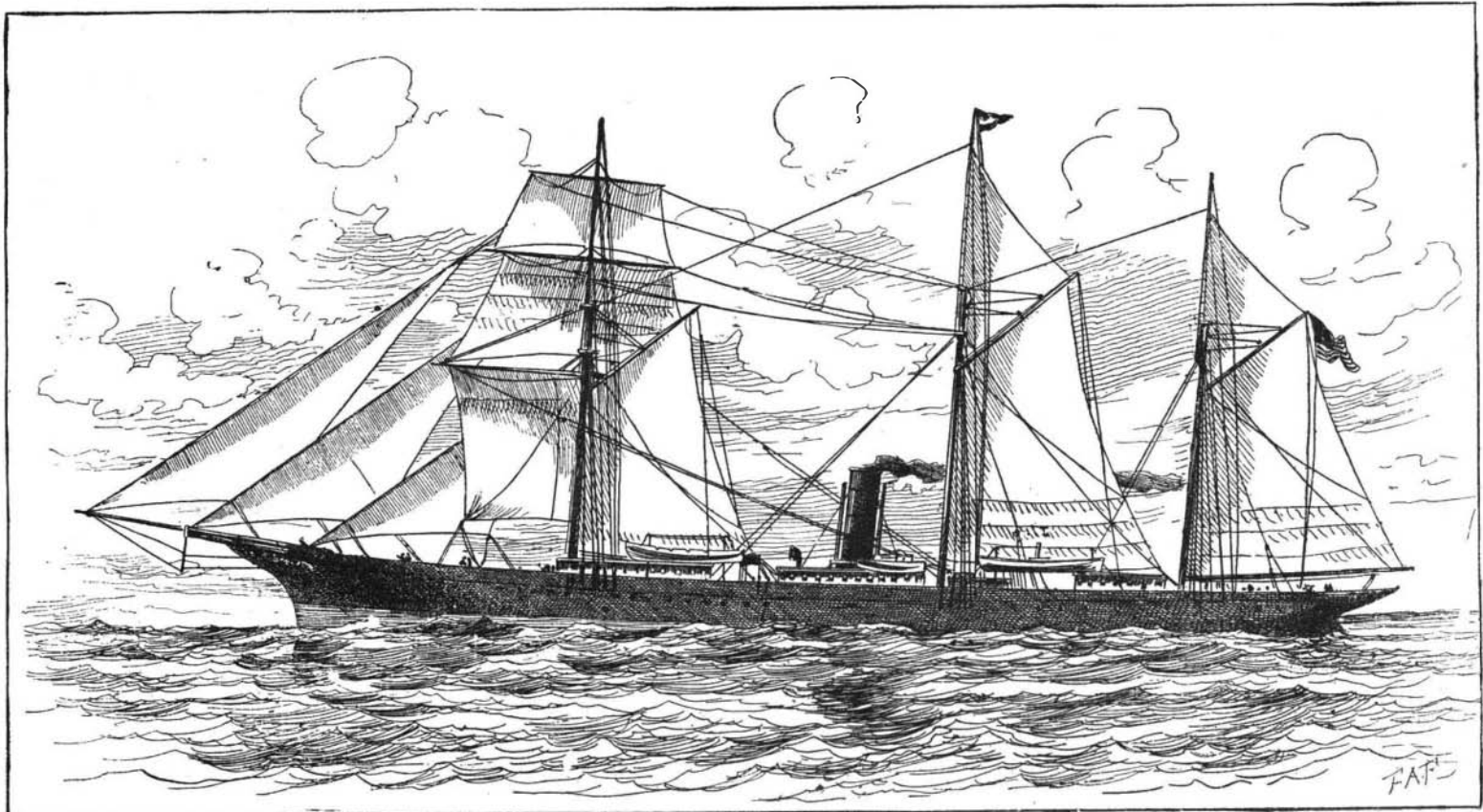
THE ALVA—VANDERBILT'S NEW YACHT.

The Harlan & Hollingsworth Company has lately finished for Mr. William K. Vanderbilt the steel yacht Alva, the finest pleasure ship afloat, at a cost, it is said, of about one million dollars. The vessel is commanded by Capt. Henry Morrison, who for many years has acted so faithfully in the service of the American Line between Philadelphia and Liverpool.

The principal dimensions are as follows:

	Feet.	In.
Length over all.....	285	
Length from stem to post.....	256	
Length on load line.....	252	
Extreme beam.....	32	6
Depth moulded.....	21	3
Extreme draught.....	17	
Diameter propelling wheel.....	13	6
Measurement, in tons O. M., 1,311.		

The keel is of bar type, 12 by 2½. The frames are of



THE ALVA, THE NEW MILLION DOLLAR PLEASURE YACHT.