

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

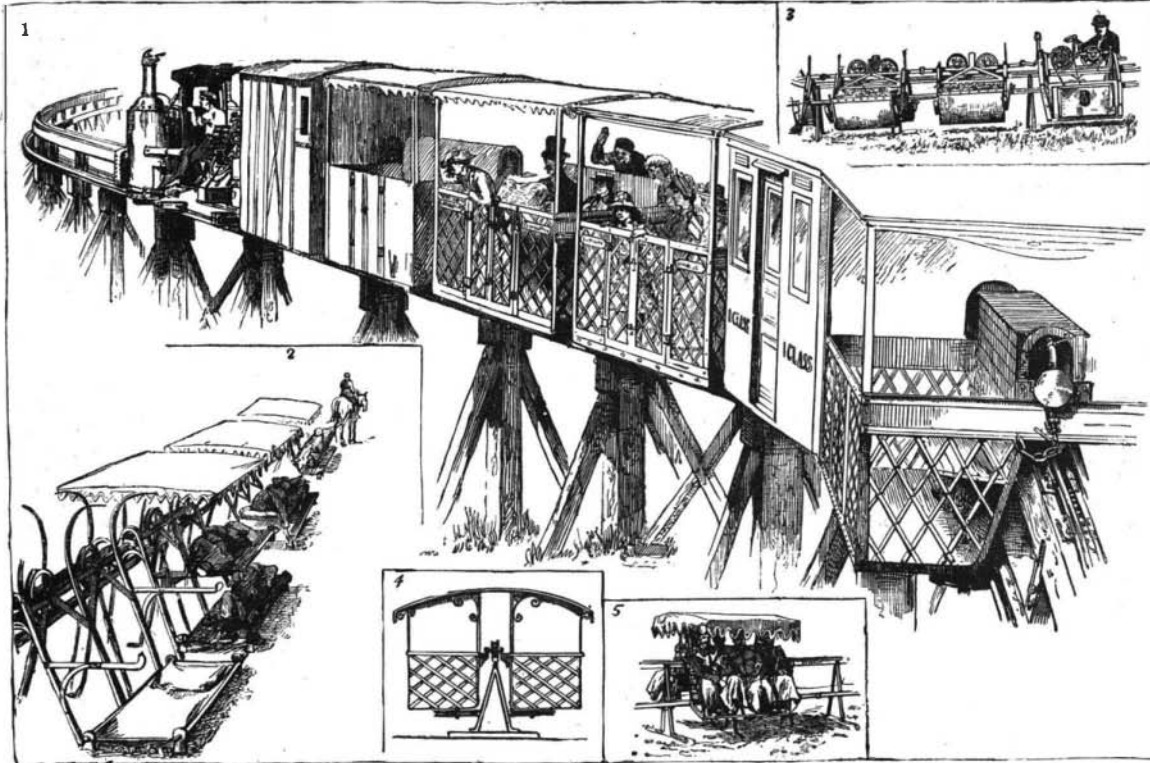
pine is laid on top of this. All the deck houses are of steel plate, built into the deck, covered with teak-wood worked in panels. The bulwark stanchions, plank sheers, coamings, skylights, and all other wooden fittings on the upper deck are also of heavy teak.

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*.

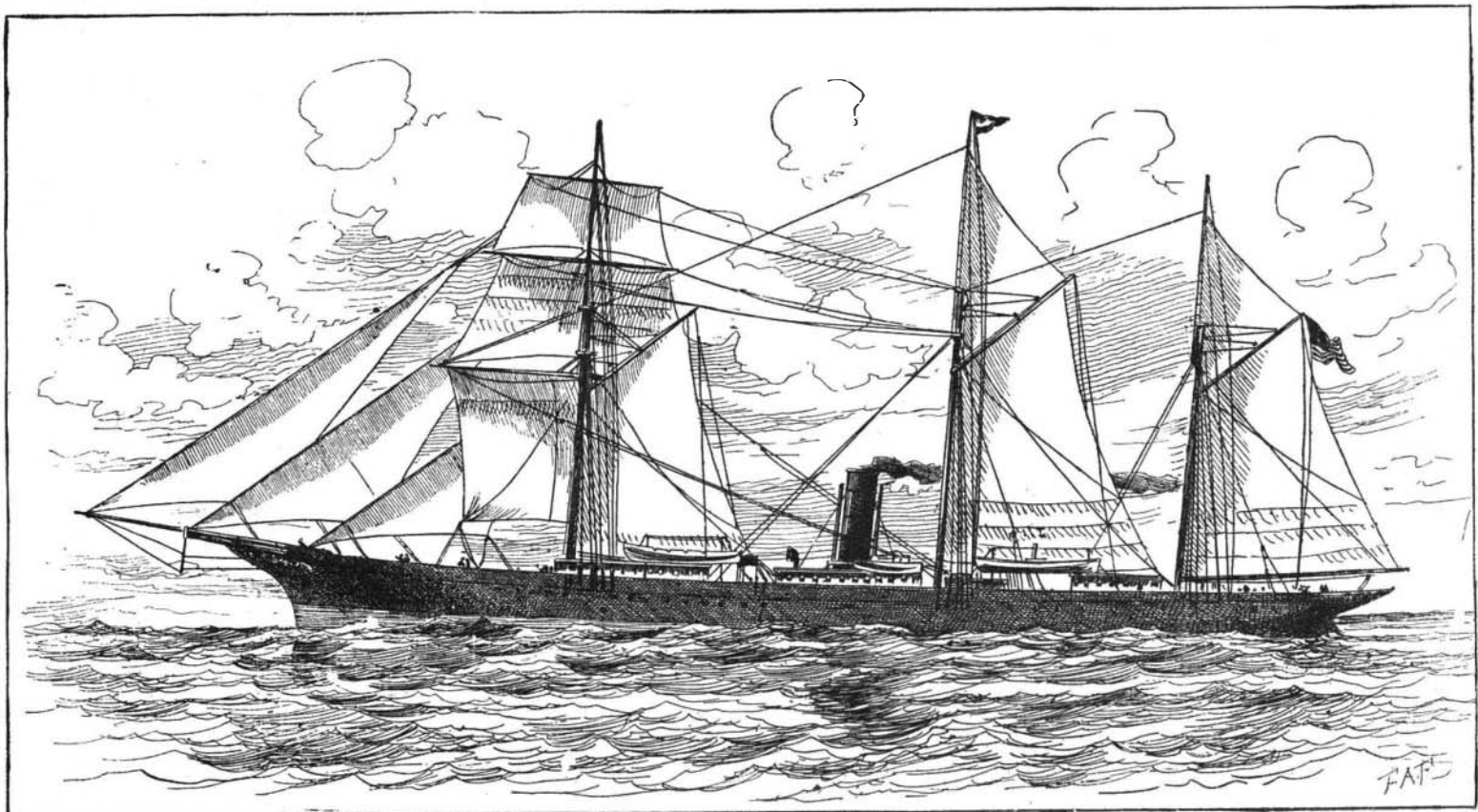
THE ALVA—VANDERBILT'S NEW YACHT.

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.

tubes, and telephones throughout the ship. Supplementary engines and boilers will be supplied to run the fire engine pumps, the electric dynamo and ice-making machines, and various other apparatus.

The internal arrangements of the Alva are as labyrinthian as those of a palatial hotel. In fact, she is literally a floating hotel, designed for the comfort and luxury of a few select guests. The best hostelry in the land can furnish nothing that will not be found upon this pleasure ship, and few private palaces will surpass her commodious accommodations and material luxuries. In many of the new steam yachts the crew occupy the after part of the ship and the owner and his guests the forward part. In this instance a compromise plan is adopted. The seamen live in the bow of the craft. The owner occupies the space from the forward compartments to the engine rooms, and also several apartments abaft of the machinery, while the captain and his executive officers, the engineers, the chief and the stewards live in the rear compartment. The Alva is expected to have a high speed rate—probably 23 miles or more per hour.

The Hon. William Gurley.

By the recent death of Mr. Gurley, at the age of 66 years, the city of Troy, N. Y., loses one of its most estimable, enterprising, and useful citizens. He was born and always resided in Troy, was prominently identified with its business and social interests for most of his life, was a member of its city government in various positions, and a representative in the State Legislature. He was the senior member of the firm of W. & L. E. Gurley, manufacturers of civil engineers' and surveyors' instruments, was an officer of several financial institutions, and president of the Troy Female Seminary, which he successfully brought through very serious difficulties, and his work for which he was accustomed to look upon as the most satisfactory achievement of his life. Besides the important public positions alluded to, his private life was filled with acts of the most unselfish and kindly nature. His counsel was largely sought and freely given to all.

His Christian character and example in all the relations of his active and busy life were such as to make him a model to the young men of his time.

He had a most ingenious and practical mind, and made many important improvements in the instruments of the engineer, some of which were protected by valuable patents.

His death is really a public loss, and will be a source of sincere grief to the many who knew him in various parts of our land.

Mr. Gurley was graduated from the Rensselaer Polytechnic Institute in 1839, and was at the time of his death its acting president. He was always prominent in religious and charitable work, and in the promotion of what was best and purest in the life around him.

IMPROVED TENT.

The accompanying engraving illustrates a tent, which is the invention of Mr. Merritt P. McKoon, of El Cajon, San Diego Co., California. As the doorway is placed at the center of one side, the trunks or cots can be placed crosswise of the tent, and near the ends and end poles, thereby economizing room in the center of the tent, where it is most desired. This middle room can be occupied by table, chest, chairs, etc. The half-diamond shaped ends form valuable "stowaway" places, or they can be curtained to form separate apartments when necessary. The center or point seam on each end is rope bound and brass linked over end pole iron spikes at the top of the tent, while the lower end of this rope is left loose for about 20 inches



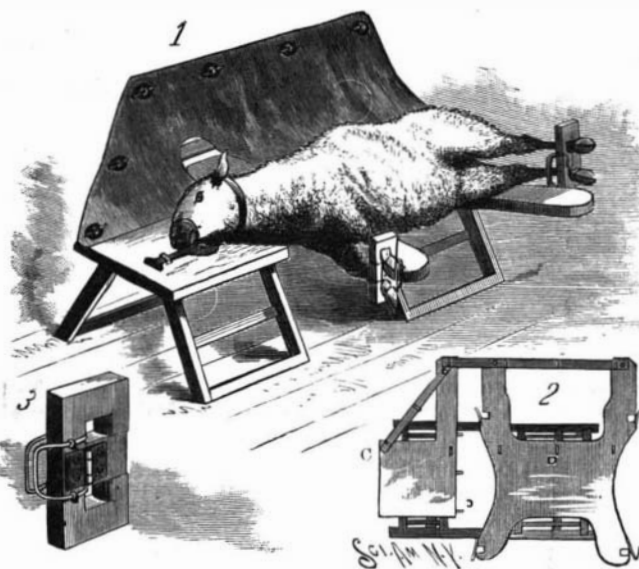
THE CAMPER'S FAVORITE TENT.

beyond the tent, to becket over tent pin tightly or loosely at will, as dry or wet weather requires. This anchors the tent firmly and solidly, and insures its standing during the most severe gale. The angular roofing or awning over the doorway is of great value; as either one or both of the door flaps can be attached to the sides of the awning at pleasure, so as to obstruct

the entrance of sun, rain, or wind when desired, a most agreeable shelter is provided. The tent presents a neat and most attractive appearance, and is as well adapted for lawn or sea shore use as for actual hard camping service.

IMPROVED SHEEP SHEARING TABLE.

The sheep shearing table shown in the accompanying engraving consists of two parts, a main and auxiliary table, the former (A B in the plan view, Figure 2) supporting the body of the sheep, while the latter, C, supports its head. The front corners, A, of the main table are formed with arms, each of which has a hook adapted to hold a stock, which secures the



PHELPS' SHEEP SHEARING TABLE.

legs of the sheep, and the tables are so arranged, in relation to each other, that a space is formed between their adjacent edges through which the front legs of the sheep swing when he is turned from one side to the other in shearing. Thus he is turned on his belly instead of on his back. Attached to the back arms of the main table are other hooks, B, which catch the bails of stocks (shown detached and enlarged in Figure 3) for holding the sheep when turned upon the side opposite to that shown in Figure 1. The stock is formed with an edge opening and with side communicating openings to receive the ankles of the sheep, and a hinged block is arranged to spread the limbs of the sheep into the side openings and also to close the edge opening, so that when the limbs are placed in the stock and the block closed into its opening they will be securely held. The sheep's head is held to the auxiliary table by a strap that buckles around his neck or horns, and is attached to a block provided with a ring to go over his nose. The block is held to the table in loose bearings, which permit it to turn axially so as to give considerable freedom and a degree of comfort to the sheep while confined for shearing. Upon raised fenders attached to the rear edge of the main table, and extending to the outer corner of the auxiliary table, is secured the outer edge of an apron, whose inner edge is secured to the tables by suitable fastening devices. The apron is thus held in an inclined position to receive the wool as it is clipped from the sheep, and a space is cut in it to correspond with the space between the tables, so that it will not interfere with the turning of the sheep, and this space is filled when tying the fleece by raising a second smaller apron provided for the purpose.

This table furnishes an absolute fastening for the legs and head, which can be easily and quickly applied by one person, and a clean, smooth surface on which to fold and tie the wool. The sheep is held in an easy position, in which it does not suffer nor struggle. The sheep can be instantly turned, without lifting and breaking the fleece or scattering the wool, and the fleece when wholly removed is ready for tying for market, with the clean side out.

This invention has been patented by C. B. & J. B. Phelps, of Northville, Cumberland County, Tennessee.

The Work of the Patent Office.

The annual report of the Commissioner of Patents was laid before Congress on February 5. The report calls attention to the utter inadequacy of room and facilities for conducting business in the present office. The Commissioner believes the salary list of the office should be completely revised, which, he thinks, would result in great good, and in no aggregate increase of the total.

The total number of applications filed during the last year, requiring investigation and action, was 41,442, and the number of patents issued was 23,915. The total receipts were \$1,154,551, and the expenditures \$992,503, leaving a balance of receipts over expenditures of \$162,048. The amount to the credit of the patent fund in the Treasury was \$3,107,453.—N. Y. Sun.

Horrors from Car Stoves.

A fearful railway accident took place at Woodstock Bridge, on the 5th inst., on the Vermont Central Railway. The rear part of an express train, going north at thirty miles an hour, became separated from the front part. The accident took place just at the entrance to the bridge over the White River. Four passenger cars plunged fifty feet down to the margin of the icy stream. A few persons escaped. The wreck was soon on fire from the car stoves; no water was at hand; and the imprisoned passengers, some thirty-five or more in number, were burned alive. This was but a repetition of horrors that have attended other accidents in this country for years past. It is high time that fireproof materials, instead of dry wood, were used in car construction, and that some new mode of heating railway cars was invented.

In this city the five hundred daily trains of our steam elevated railways are comfortably warmed by steam taken from the locomotives. No stoves are used. About a million passengers are daily transported. But this system, although good for local or fixed service, cannot be easily adapted to the varying exigencies of general railway travel, for reasons stated by Mr. Depew, President of the New York Central Railroad. In a recent interview with a reporter of the New York Tribune, Mr. Depew said:

"We make up trains here at Forty-second street, and before the train goes out of the station the engine may be blocks off. It is not always possible to have an engine attached to a waiting car or a train simply to give heat. Another objection to steam is that after a train has left New York, for example, it will pick up additional cars at Poughkeepsie, Albany, Utica, Syracuse, and so on. These cars have been waiting in these stations in advance of the coming of the train, to accommodate passengers and save time. Often they are sleepers, in which persons have gone to bed early. They must be kept warm, and how is that warmth to be had from an engine drawing a train miles away? It has been proposed to have a special boiler attached to the baggage car, with a special attendant. This would give heat to the complete train, but I don't know that the plan has ever been put into any kind of successful operation. What must be devised is a source of heat for each car, without the use of fire."

A Serious Oversight.

A correspondent writes from Cairns, Queensland, to the *Ironmonger* as follows: "England ought to make herself better acquainted with colonial wants, otherwise she will lose a great part of her colonial trade. America is pushing her hard in several lines, such as tools, agricultural implements, and rice machinery. A six horse power machine made in the United States of America can be bought for \$900. It is not perfect, for it breaks the rice too much. Let England step forward and make a perfect one, and get the trade, for there will be a great demand for rice machinery in Queensland. Our vehicles are nearly all built in the United States of America, sugar machinery from France, and steel rails from Germany. England cannot hold her own in saddlery; very few will buy an English saddle. You at home by your actions seem to think you know our requirements better than we do ourselves, but when you lose the trade you will not find it an easy matter to get it back again, and you will lose it if you do not alter your ways. It would pay your manufacturers to send out some intelligent persons to see what the colonials require."

GARMENT AND HOSE SUPPORTER.

The accompanying engraving clearly shows the construction of this simple and useful article, which has been patented by A. P. Rindskopf. The middle portion of the wire forming the supporter is bent upon itself so as to make a spring clasp, above which each section of the wire is curved outward and then inward, and the ends are hooked. The supporter is attached to the elastic fabric by means of the hooked ends. A portion of the garment to be supported is then passed through the central curved portion and pulled down within the clamp, which will firmly hold it. There is no danger of the garment being torn, even when of a delicate nature. The supporter is made of the best quality steel spring wire, heavily silver plated.

This device is manufactured by the Brooklyn Shield Co., 67 Sumner Avenue, Brooklyn, N. Y.

