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NEW YORK, SATURDAY, DECEMBER 24, 1887.

The next issue closes another volume, and if those subscribers to this paper-and there are several thousand of them-whose term ends with The Tehuantepec Ship Railroad Company is now in the year will remit for a continuance of the paper before the year closes, it will save the removal of point of view the United States should encourage the a large number of names from our subscription promoters. list, and insure the continuance of the paper railways for hauling vessels out of the water for repairs without interruption. By so doing the subscriber is old. Thousands of steamers and craft of every dewill be benefited and our subscription clerks scription are thus treated every year. Among them are greatly relieved.

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THE EADS SHIP RAILROAD.

We elsewhere illustrate and give the description of a recent achievement in the land transportation of war vessels. At the present time it is an event of some importance. The French nation, characterized by its enterprise in engineering and scientific fields, has executed an interesting feat. A torpedo boat was to be taken from Toulon to Cherbourg. Such vessels have proved anything but comfortable, or even safe, sea boats. Strength, seaworthiness, and accommodation, all are put aside in their construction in order to attain the highest speed. The land route, therefore, was tried, and the trial was a complete success. Without the least damage, the transportation was accomplished. The delicate sides, less than an eighth of an inch in thickness, were uninjured. The vessel rested on a simcite this experiment as of special interest at the present time. Less than a year ago we were called upon to note the death of James Buchanan Eads. Independent of the personal sorrow that this event occasioned, a sincere feeling of regret found origin in the fact that he had died without witnessing the successful accomplishment of his greatest project-the Tehuantepec ship railroad. By his resistless energy, which had overcome so many obstacles, natural and personal, that stood in the way of his other achievements, he had brought the work well forward. The engineering details had all been fully executed. The company had been formed, and the route selected. All that he waited for was the congressional action necessary for his enterprise, which is of international character. He died before Congress took the desired cognizance of his great plan.

All is as he left it. A new Congress has assembled. the field, ready to undertake the enterprise and still

The plan is eminently practical. The use of marine the weakest kind of structures. River steamers, with parallel; then they taper at bow and stern to a section their longitudinal trussing or hog-frames, ready to re-25 feet wide. This is the extent of the pointing. The ceive every strain, and show its effects, ascend the inclined road without injury. The devices used for cradling them are of the crudest description. No attempt is made to adopt any such improved system as that applied in the Eads plan. Thus, in the harbor of New York the daily proof of its practicaning may be seen by all. For if it is possible to haul ships, with imperfect appliances, up an inclined railroad three hundred yards in length, a fortiori it must be easier to draw them upon a special railroad, carrying a perfected cradle, supporting the ship at every point.

The transportation of the French vessel proves it most forcibly. Here a large torpedo boat was carried on a simple cradle on ordinary railroads many miles through France. It crossed other roads and went around curves without trouble and sometimes at the rate of twenty-five miles an hour. No condition was in its favor. The vessel was of the most fragile character, and was barely seaworthy. The journey was nevertheless performed without incident, and a distance of about eight hundred and fifty miles was covered. Compared with this distance, the Tehuantepec route, about one hundred and fifty miles, seems short.

It is now considered that this method can be used for torpedo boats. The establishment of the fact, however, goes for much more than this. It proves the sound judgment of the best American and English engineers. By such the Eads railroad has been critically examined and discussed. Their opinions have been given emphatically in its favor.

PATENT "INNOCENTS" AGAIN IN CONGRESS. A ship at sea is exposed to far more severe strains A lively discussion lately took place in the United than she would ever meet on the railroad. A wave running lengthwise carries with it an upward strain of States Senate, when the Hon. J. Z. George, of Mississippi, introduced his bill (S. 787) to protect "innocent many tons, followed and preceded by downward strains of equal or greater extent. As a ship pitches purchasers," and asked that it be referred to the Juand rolls, the most complicated and severe stresses are diciary Committee, instead of to the Patent Commitapplied to her plating and frames. Longitudinal and tee, where it properly belongs. torsional strains, the latter aggravated by her masts The following is the text of the bill : A bill to protect innocent purchas and hallast and general dead weight rs of natented are contir ually at work upon her structure. Yet all is withstood. articles, and for other purposes (S. 787). A ship is built upon the lines of the most advantageous "Be it enacted, etc., That it shall be a valid defense distribution of material. The hollow hull, withits curv-, to any action for an infringement of any patent, or ing contour, represents the perfection of the tubular any suit or proceeding to enjoin any person from the structure. When iron ships were first proposed, one of use of a patented article, that the defendant therein, their prominent advocates said that a properly built or his assignor, purchased the patented article for iron vessel could be held suspended by her bow and use or consumption, and not for sale or exchange, stem without serious flexure and without injury. in good faith and in the usual course of trade, with-It is not too much to say that, substantially, this 'out notice that the same was covered by a patent, very thing has been done in the tubular bridges. In or without notice that the seller had no right to sell them a relatively light iron tube is held by its ends such article; and in all such cases notice received after with its center quite unsupported. Not only does this, such purchase shall not have the effect to impair in suffice to carry its own weight, but it constitutes one any way the right of such purchaser as absolute owner. of the stiffest and strongest bridges known for railroad "Sec. 2. That all patents for any discovery or invention hereafter granted by the United States shall be traffic. In situation the ship railroad has everything in its subject to purchase by Congress, for the use of the peofavor. It is several hundreds of miles nearer the ple of the United States, at such reasonable valuation, United States than the canal routes. Its completion and on such terms, and in such mode, as may be proby an American company will place one favorite method vided for by law; and all such patents shall be consid.

DECEMBER 24, 1887

pleted. If started now, it will be finished long before either of them, and will be in successful operation, carrying ships through the semi-tropical forests, while the dredges and excavators are workily removing countless tons of earth from the projected canal routes.

The sanction of Congress is asked, and should not be withheld. The apperent boldness of the project, coupled with its national origin, should recommend it to the legislature.

A committee of the Senate has reported in its favor. The distinguished engineer who conceived the project has left it complete and worked up to the last detail. To the fiftieth Congress is left the honor of erecting a suitable monument to the greatest engineer ple cradle, and was taken on the regular railroad. We of his day. The Tehuantepec railroad will be his best memorial, and we cannot but believe that all desired congressional action will be freely taken.

> In the transport of the French torpedo boat it is not too much to say that the far reaching influence of the American engineer is discernible. For it is highly probable that the project so successfully carried out had its original suggestion in Captain Eads' ship railroad.

A GREAT RAFT OF LUMBER.

A giant raft of timber is now expected at this port. It left Nova Scotia on December 8, in tow of the steamship Miranda. The launch took place near Port Joggis, on an inlet of the Bay of Fundy.

The leading features of its construction, which form the subject of a patent, are as follows. In general shape, it is a pointed cylindroid of elliptical section. It is composed of logs chained together, their attachment being re-enforced, and the structure consolidated awaiting the action of the legislature. From every by interwoven withes and small branches. Through the center a 21% inch chain is carried, which is inclosed in a solid boxing. In total length, this chain is one thousand feet, leaving about four hundred feet free for anchoring or towing. The central cross section is an irregular ellipse, 65 feet wide and 39 feet deep. For four hundred feet of its central portions the sides are total length is 585 feet. It was put together in a substantial cradle that was built in permanent shape, as it is proposed to build in it other rafts. The logs were laid longitudinally, and after each course was in place, branches and withes were laid across them, and their free endo were turned in over the next course. Every seven feet marks the point of attachment of two lateral chains that run out horizontally through the mass of logs. These connect with other chains that surround the whole mass. The latter are tightened by hydraulic jacks. The central chain, upon which the pull comes in towing, tends to still further bind together the logs, as it draws upon the surrounding bindings. The chains weigh two hundred tons.

> In the center around the central cable, the hard wood is stowed, while the softer and less valuable timber forms the outer layers. It contains 25,500 sticks of timber for spars and piling, and one half a million board feet of maple, beech, and birch.

> The launch was executed with great success. The great structure as it ran down the ways occupied 39 seconds in going 1,600 feet. It is estimated to weigh 11,000 tons, or 2½ times as much the Great Eastern. The lumber it contains would fill seventy schooners. If the venture proves successful, it will tend to make quite a revolution in the lumber trade.

> Mr. James D. Leary, of this city, is the owner of the raft, and is a firm believer in the capabilities of the system.

Irrigating Machinery on the Pacific CoastBy Mr. JOHN RICHARDS, of San FranciscoSecond and last installment of this valuable paper; pumps, engines and hydraulic rams discussed The Generation of SteamBy GEORGE H. BABCOCK.•f New York CityContinuation of the Sibley College lecture on tubular boilers, illustrating and describing furnaces for burning bagasse, waste gas from blast furnaces, and other special applications and appliances. -7 illustrations.		2 1 2 1
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