

THE STEAMER ST. PAUL.

We give an engraving from a photograph of this new and splendid steamer which lately has taken her place on the American line of steamers plying between New York and Southampton.

The St. Paul is a sister ship of the St. Louis, launched in November last, and both are, in the words of Mr. Charles H. Cramp, "American from truck to keelson. No foreign materials enter into their construction. They are of American model and design, American material and built by American skill and muscle."

They are the largest vessels ever constructed in America, their principal dimensions being: Length over all, 554 feet; length on load water line, 536 feet; extreme breadth, 63 feet; moulded depth, 42 feet; tonnage, gross register, 11,000 tons. The hull has a double bottom constructed on the cellular principle, subdivided by athwartship bulkheads and a longitudinal division arranged for heeling purposes, the whole available for water ballast. It is so subdivided by transverse bulkheads that even in the event of a collision and injury to a bulkhead, whereby two compartments might fill with water, the ship would still float in perfect safety. It has a straight stem and elliptical stern, topgallant forecabin and poop, with close bulwarks fore and aft, and promenade, saloon, upper, main and orlop decks, the three first named to be plated from end to end. The main deck will be plated for the length of the machinery spaces, and will have stringers and tie plates beyond. Wood planking will be laid on all decks. The promenade deck will remain unbroken the whole length of the vessel. The vessel will carry about 320 first-class and 200 second-class passengers and 900 emigrants.

The engines are quadruple expansion, designed to develop 10,000 I. H. P. each. The cylinders are 36, 50, 71, and 100 inches respectively in diameter, with a piston stroke of 60 inches, two sets of engines turning twin screws, which will be sectional, with three blades. Steam for the working of the main engines will be furnished at about 200 pounds pressure by six steel double-ended boilers, each 20 feet long and 15 feet 7½ inches diameter. When working under ordinary sea-going conditions, the vessel is easily capable of maintaining a speed of 20 knots per hour at sea.

The St. Paul has been especially arranged to be readily and quickly convertible into an armed cruiser of the United States government, in which capacity she will carry a number of six-inch rapid fire guns.

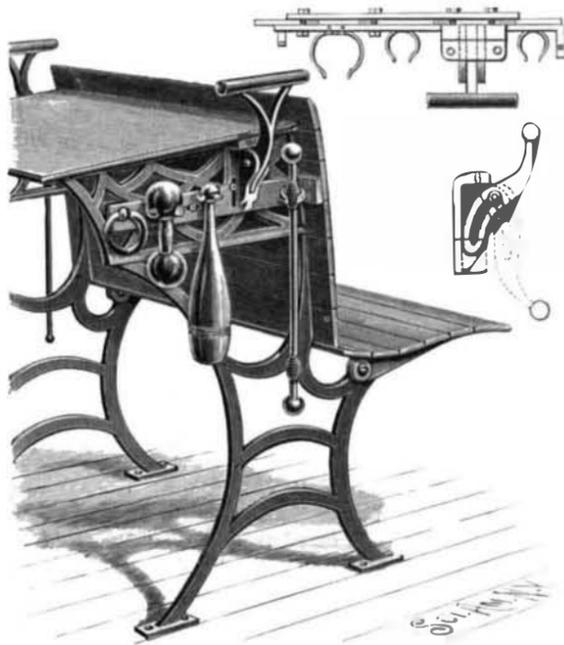
House Numbering.

Berlin is preparing to fete the hundredth birthday of the house number. In the London and Paris of a century ago ciphered houses did not exist. The coat of arms, the house name or the sign board were the only indications to guide our ancestors' wandering feet by day or dark. "Watchman, what of the night, and where the deuce am I?" must often have been the cry of these bewildered minds. Berlin began to number houses in 1795. Starting from the Brandenburg gate, the Prussian ediles counted straight on to infinity, neither beginning afresh with fresh streets

nor numbering the houses by odds and evens. Vienna adopted the latter reform in 1803 and Paris followed in 1805.

A SCHOOL ROOM GYMNASIUM.

Educators seeking means by which to promote, with convenience and economy, the physical as well as the mental training of those in their charge, will be interested in the school room arrangement of gymnastic appliances shown in the accompanying illustration.



A SCHOOL ROOM GYMNASIUM.

The improvement forms the subject of a patent issued to Mr. Theodore Bessing, the manufacturers and owners being the School Gymnasium Company, of No. 226 South Spring Street, Los Angeles, Cal. The appliances comprise ring, wand, dumb bell, bar bell, and horizontal and parallel bars, the latter being very simply adjusted and dropped out of the way altogether, as indicated by dotted lines in one of the small figures. Another view is a section representing the attachment of the bar bracket and combination rack to a desk. The whole arrangement is compact and does not project into the aisle when not in use. The improvement has received the warm commendation of numerous teachers and school superintendents.

A Great Sailing Ship.

The Seaboard relates a curious incident with regard to the iron vessel May Flint, said to be the largest sailing ship that ever entered the port of San Francisco. She is 361 ft. long, 43 ft. beam, 25 ft. in depth, has a registered tonnage of 3,287 tons, and was carrying at the time of the occurrence referred to 4,320 tons of coal, which brought her down in the water 23 ft. Her commander, Captain E. D. P. Nickels, reports that during a recent voyage his ship

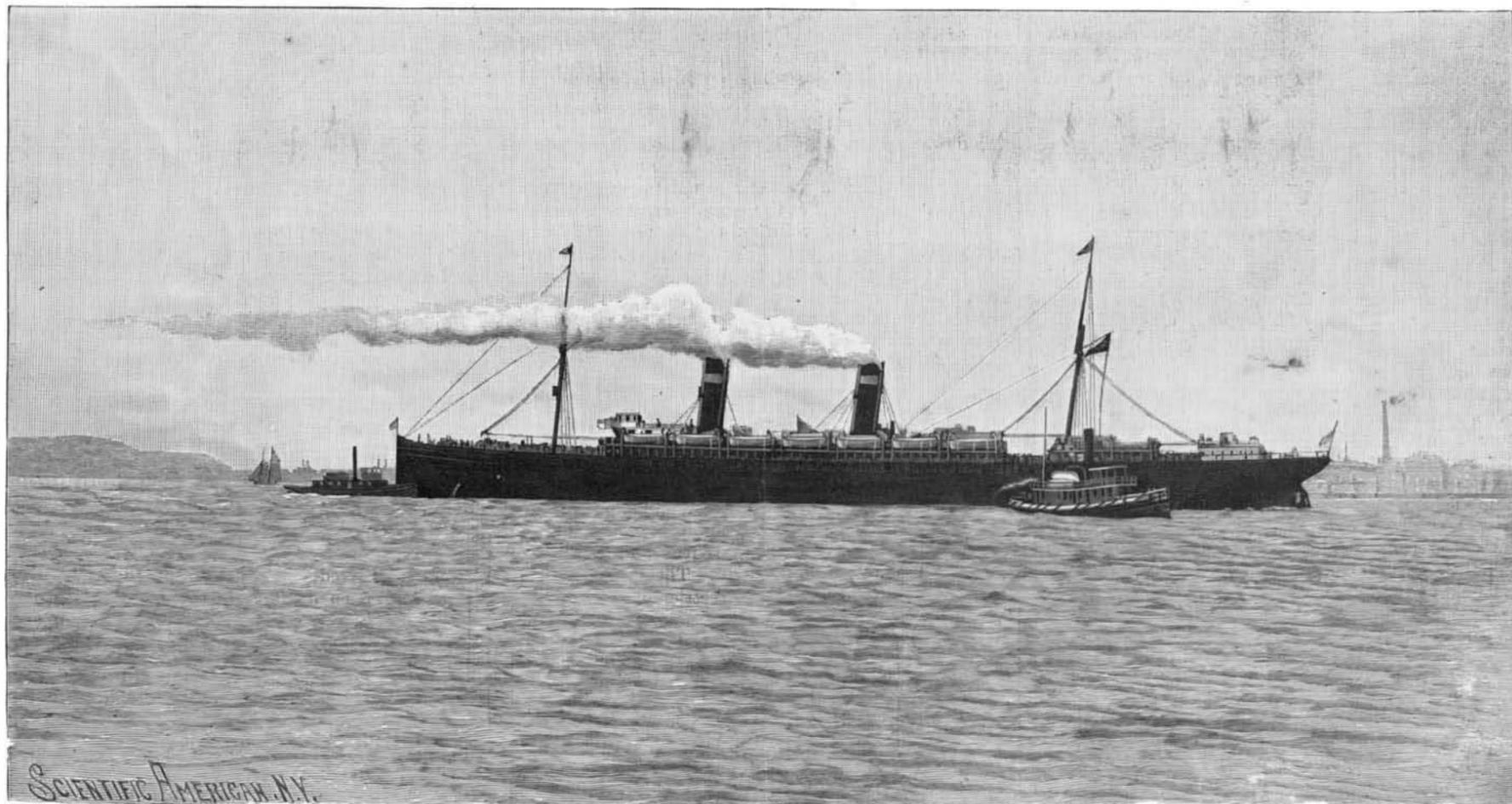
encountered head winds and the usual rough weather near Cape Horn, losing her three topgallant masts, three topsail yards and a number of sails, which were blown away. The passage from the equator was quite uneventful until the ship arrived off the port of San Francisco. The wind failing, the vessel drifted north close to Bodega Heads. Captain Nickels tried to work her round the point into Bodega Bay, but was unable to manage the great becalmed ship. So he let go the starboard anchor about half a mile from the beach. The wind was so light that the anchor held the ship, though she had only about nine fathoms of water under her stern. At this point the steamer Alice Blanchard came along, and seeing the great ship in such a dangerous position, offered to tow her off for \$12,000! Such a sum for throwing a hawser to the bow of a drifting ship on a calm day was a modest demand, to say the least of it. The demand then fell suddenly to \$5,000. Captain Nickels offered \$160 for the end of a tow rope, but the steamer, blowing her whistle as a salute, passed on, and her captain now passes as the meanest man on the coast.

Liquefaction of Gases.

Olszewski recently succeeded in producing a momentary liquefaction of hydrogen by allowing it to expand suddenly from 140 atmospheres' pressure, when cooled to about -210° C. with liquid air or oxygen boiling under a pressure of less than 20 mm. Its boiling point under atmospheric pressure was found to be -243.5° C., only 30° above absolute zero. In a letter to Ramsay (Nature, October 3) he now announces that under the same conditions helium shows no sign of liquefaction. Its boiling point is therefore still lower than that of hydrogen, and it is the most volatile substance known. In view of the great difficulty in reaching still lower temperatures, it would seem that the present methods will have to be considerably improved before helium can be liquefied.

Staining Wood Black.

A process that is much employed for the above purpose consists in painting the wood consecutively with copper sulphate solution (1 per cent) and alcoholic aniline acetate (equal parts of alcohol and acetate). A very durable black—and the nearest approach to real ebony—is readily obtained by moistening the surface of the wood with dilute sulphuric acid (1:20), and subsequently applying heat. A temperature of 60°-90° C. suffices in a very few minutes to produce the desired result. An excellent black was obtained in this way on beech, bass, and boxwood; while a second treatment with acid was necessary in the case of cherry, walnut, and birch. With oak and ash the results were not so good; and apple, and different varieties of pine, were still less amenable to the process, pine especially being unevenly stained. In order to afterward remove the acid from the wood, it might be well to thoroughly wash the latter with dilute soda solution, followed by clean water. It is unlikely that this method can be applied to any but small articles, because of the risk of possible fractures during the necessary heating of the wood.—Badische Gewerbe-Zeitung.



THE NEW STEAMER ST. PAUL OF THE AMERICAN LINE.