

A CHEAP AND EFFICIENT TYPEWRITER.

The respect commanded by a typewritten letter, as well as the greater legibility obtained by means of a writing machine, has induced many tradesmen whose correspondence is sufficiently large, to purchase an expensive typewriter. But the cost of the machines commonly used in large offices places them beyond the purse of the average tradesman. The want of a cheap, yet efficient machine, which will perform the service of a more costly typewriter, has been filled by the Simplex Typewriter Company, of 644 First Avenue, New York city, with the introduction of a very simple and ingenious apparatus, which has been patented here and in Europe.

The typewriter in question, as our illustration shows, consists of a table upon which are mounted a type carriage, sliding in guides, a rack, and a roller to feed the paper.

The carriage consists of a base plate upon which is centrally pivoted a printing wheel, provided with rubber keys carried on the ends of radial spring fingers. The type at the lower surface of these spring fingers is inked directly from removable pads, thus dispensing with the cumbersome ribbon.

In operation, the particular key to be used is depressed together with the carriage, and the wheel is rotated to bring the key to the front of the carriage. Here the key falls into a recess into contact with the paper, and is automatically locked during the printing operation.

The elevation of the depressed carriage and the spacing are effected by a very simple automatic device carried on the carriage. The device comprises merely a dog, which engages the rack on the table and which is controlled by a retractile spring. When a key and the carriage are depressed during the printing, the dog engages a rack tooth, forces the carriage to the right, and assumes a nearly horizontal position. When the carriage rises, after the pressure is relieved, the dog, under the action of the retractile spring, shifts forward ready to enter the next tooth when the carriage is again depressed.

Novel features of the invention, besides the new principle of operation, are the automatic spacing and locking mechanisms. The recess in the base plate by which the wheel is locked as a key falls into it, holds the wheel exactly in place during the printing operation. In many typewriters of a somewhat similar nature, no means are provided for arresting the wheel as a key comes into proper position.

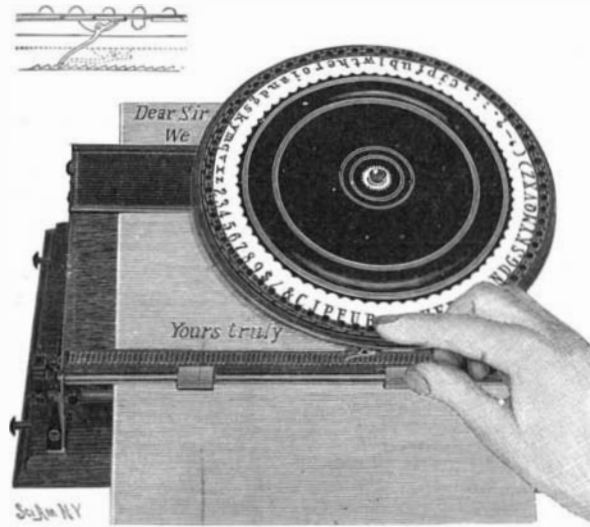
The speed of the machine is essentially that of the ordinary typewriter, plus the additional movement required to swing a key to the locking point. It will be seen that the typewriter possesses the essential features of every writing machine; a key for each letter, sight-writing, self-spacing, and roller feed, without the intricacies of the usual mechanism.

THE NORTH GERMAN LLOYD LINER "KAISERIN MARIA THERESIA."

The latest evidence of the activity of the two great German Atlantic transportation companies is the arriv-

hauling of the interior fittings and furnishings. With her great length, her powerful engines and thoroughly up-to-date appointments the "Kaiserin Maria Theresia" is to all intents and purposes a new ship.

The alterations were effected at Stettin, Germany, where the "Spree" was docked in the large floating dry-dock, cut cleanly in two amidships, the two halves of the hull pulled apart for a distance of 66 feet, and an entirely new section of hull built into the gap. The after part of the hull below the water line had to be taken apart, and the framing and plating entirely



AN INEXPENSIVE FORM OF TYPEWRITER.

remodeled to accommodate the twin propellers which took the place of the old single propeller. New twin-screw four-cylinder engines were installed, the boiler plant was entirely renewed and, indeed, the whole engine and fireroom was brought up to modern practice, while entirely new upper and promenade decks were added. The vessel now has a length over all of 540 feet, with a beam of 52 feet, and a depth of 37 feet. She has a gross registered tonnage of 7,800 tons and a displacement of 13,600 tons. It will be noticed that she is a remarkably long vessel for her beam, the ratio of her length to breadth being 1 to 10.5. In this respect she is not unlike the steamers of the White Star Company which is the only company that has steadily adhered to the plan of building those big ocean steamers with an extremely long and narrow hull, the "Oceanic," the latest of these ships, having a ratio of beam to length of 1 to 10.4.

In the accommodation for passengers the "Kaiserin Maria Theresia" follows the general system of location, furnishing and decoration which characterizes the boats of the North German Lloyd Company. She has accommodation for 330 passengers in the first cabin, 140 in the second cabin and 400 in the steerage, while the crew numbers 290. The first cabin passengers are carried amidships, the second cabin aft, and the steerage forward. The dining room is situated amidships on

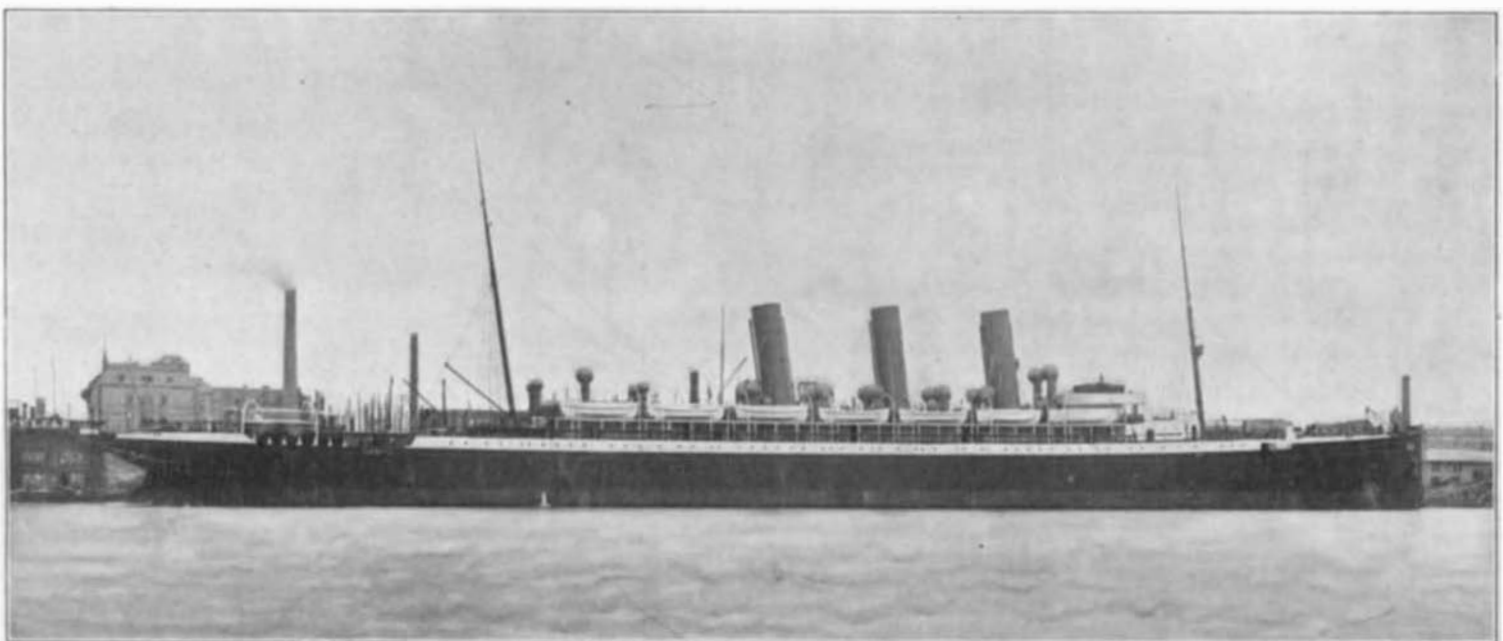
offers an unobstructed walk of 310 feet, and is protected throughout its whole length by an awning deck

The hull of the steamer is divided into eleven watertight compartments which extend to the upper deck; and a commendable feature is the ample provision of boats of the largest size. The ship is driven by two triple-expansion engines of 17,000 indicated horse power, which will give the vessel a sea speed of about 19½ knots an hour. This, although considerably less than the speed of the "Kaiser Wilhelm," is well up to the average speed of modern passenger ships of this class, and is about the rate of speed aimed at and secured in the "Oceanic" of the White Star line. Each of the engines has four steam cylinders working on four cranks, which are arranged according to the principles of the Schlick-Yarrow-Tweedy system, which is designed to avoid vibration and is working with admirable results in several of the latest trans-Atlantic ships. The diameter of the cylinders is 43½ inches, 67 inches, 77 inches and 77 inches, the common stroke being 63 inches. The propellers, which are three-bladed, are of bronze, with a diameter of 18 feet 4½ inches; the whole of the shafting is hollow and is built of nickel steel. In addition to the main engines there are thirty-eight auxiliary engines which number among them 66 steam cylinders to be supplied with steam. The boiler plant consists of nine double boilers, 18 feet 7 inches in length by 15 feet 4 inches in diameter, and four single boilers 10 feet 3 inches in length, and 15 feet 4 inches in diameter. There are sixty-six furnaces in all with a combined total heating surface of 50,700 square feet, and a total grate surface of 1,531 square feet. The steam pressure is 156 pounds to the square inch. The boilers are collected in three separate groups each of which is provided with a smokestack 11 feet 7 inches in diameter, and reaching to a height of 92 feet above the grate bars.

The broadside view of the "Kaiserin Maria Theresia," which is herewith presented, shows her to have just about the right amount of sheer, striking in this respect a happy mean between the two straight lines of the "Teutonic" and the excessive sheer of the "Kaiser Wilhelm." The appearance of the ship is also aided by the judicious placing of the masts and funnels. In many respects she is not unlike the unfortunate "Kaiser Frederich," built by Schichau, of Elbing, which, it will be remembered, was returned to the builders on account of failure to make the contract speed.

The New Element, Victorium.

Sir William Crookes has recently given an account to the Royal Society of his discovery of the new element which he calls victorium. It has a pale brown color and dissolves easily in acids. Its oxide is less basic than that of yttrium but more so than the greater part of the earths of the terbium group. The chemical properties of victorium differ in many respects from those of yttrium, but generally speaking it may be said to occupy an intermediate position between this element and terbium. It is admitted that



NORTH GERMAN LLOYD LINER "KAISERIN MARIA THERESIA."

Length, 540 feet. Beam, 52 feet. Depth, 37 feet. Displacement, 13,600 tons. Speed, 19½ knots.

al in the port of New York of the handsome North German Lloyd liner which forms the subject of the accompanying engraving. Our readers will remember that in the issue of the SUPPLEMENT of January 7, last year, we published a set of interesting engravings showing the process of lengthening and reconstructing the North German Lloyd liner "Spree." The new "Kaiserin Maria Theresia" is the old "Spree," vastly improved by the introduction of 66 feet of the hull amidships, and modernized by the substitution of twin screws for the old single screw, and by a thorough over-

the main deck, and is supplemented by two small dining rooms adjoining it. The main dining room is decorated on its walls and ceiling with paintings of Empress Maria Theresa, her husband, the Emperor Franz I., and Emperor Joseph II., and also of the members of the Imperial family. There are also several views of old Vienna at the time of the Empress. The paintings of the smaller dining rooms represent historical subjects from old Vienna and the lands of the Austrian crown belonging to the Empress. There is a promenade deck for the use of the first cabin passengers which

the oxide of victorium has the formula Ve^2O^3 , its atomic weight is not far from 117. The photograph of the spectrum given by the oxide shows certain definite lines which have not been observed with any other body. The spectrum is obtained by the incandescence of the body in a vacuum tube; the light given off has been analyzed by a spectroscopic of great precision and the exposure upon a photographic plate shows a series of interesting rays in the ultra-violet region. In order to examine the negative an apparatus has been constructed which will measure to the 1-100,000 inch.