THE HAVANA FLOATING DRY DOCK.

There is one feature in the accompanying illustration of the Havana floating dry dock which proves that the photograph from which it was made must have been taken prior to the recent Spanish war. We refer to the armored cruiser "Vizcaya," which was evidently lying to the right of and a little astern of the dock at the time the photograph was taken. It will be remembered that the "Vizcaya" was on her way to New York at the time of the destruction of the "Maine," and that after spending a few days in port she left for Havana. Here she was joined by one of her sister ships, the two in company starting for the Cape Verde Islands a few days before war was declared. The present illustration shows the vessel during this her last visit to Havana, and it possesses special interest as being the last view taken of this vessel before she was destroyed in the Santiago engagement.

The vessel shown in the dock is the Spanish cruiser "Alfonso XII.," which was built at Ferrol and launched in 1887. She is built of steel and displaces 3,090 tons. Her length is 270 feet 10 inches; beam, 42 feet 7 inches; and maximum draught, 16 feet 5 inches. She is a single screw ship, her engines of 4,800 horse power driving her at the rate of 17½ knots an hour. The armament consists of six 6·2-inch Hontoria guns, two 2·7-inch, six 6-pounder, four 3-pounder rapid-fire guns, and five machine guns. This vessel is to be distinguished from "Alfonso XIII.," a more modern protected cruiser of 5,000 tons and 20 knots speed, and the auxiliary cruiser of the same name.

The big floating dock, of which so much has been heard in the last few months, was built to the order of the Spanish Colonial Office for use in the harbor of Havana. It was rendered necessary by the late Cuban insurrection, which necessitated the maintenance of a large fleet in the waters of the Gulf of Mexico. The bottoms of vessels grow foul very rapidly in the warm waters of the tropics, and it is necessary to dock, clean, and paint them at frequent intervals. With a view to the dock being able to accommodate the largest battleships and the big liners of the Spanish merchant marine, the dock was given unusually large dimensions as follows: Length over all of the dock, 450 feet; clear width between the broad altars, 82 feet; depth over the sill, 27 feet 6 inches; draught of water under these conditions, 42 feet 6 inches, and freeboard, 4 feet 2 inches.

The dock is of a comparatively new type and only a few on this system have as yet been constructed. One of these, illustrated in the SCIENTIFIC AMERICAN of September 24, 1898, was built for the great German shipbuilding yard at Stettin. In its construction and operation it may be described as a compromise between a graving and a floating dock. A graving dock is an excavation made in a foreshore, lined with masonry or timber, and closed at its entrance by a movable gate.

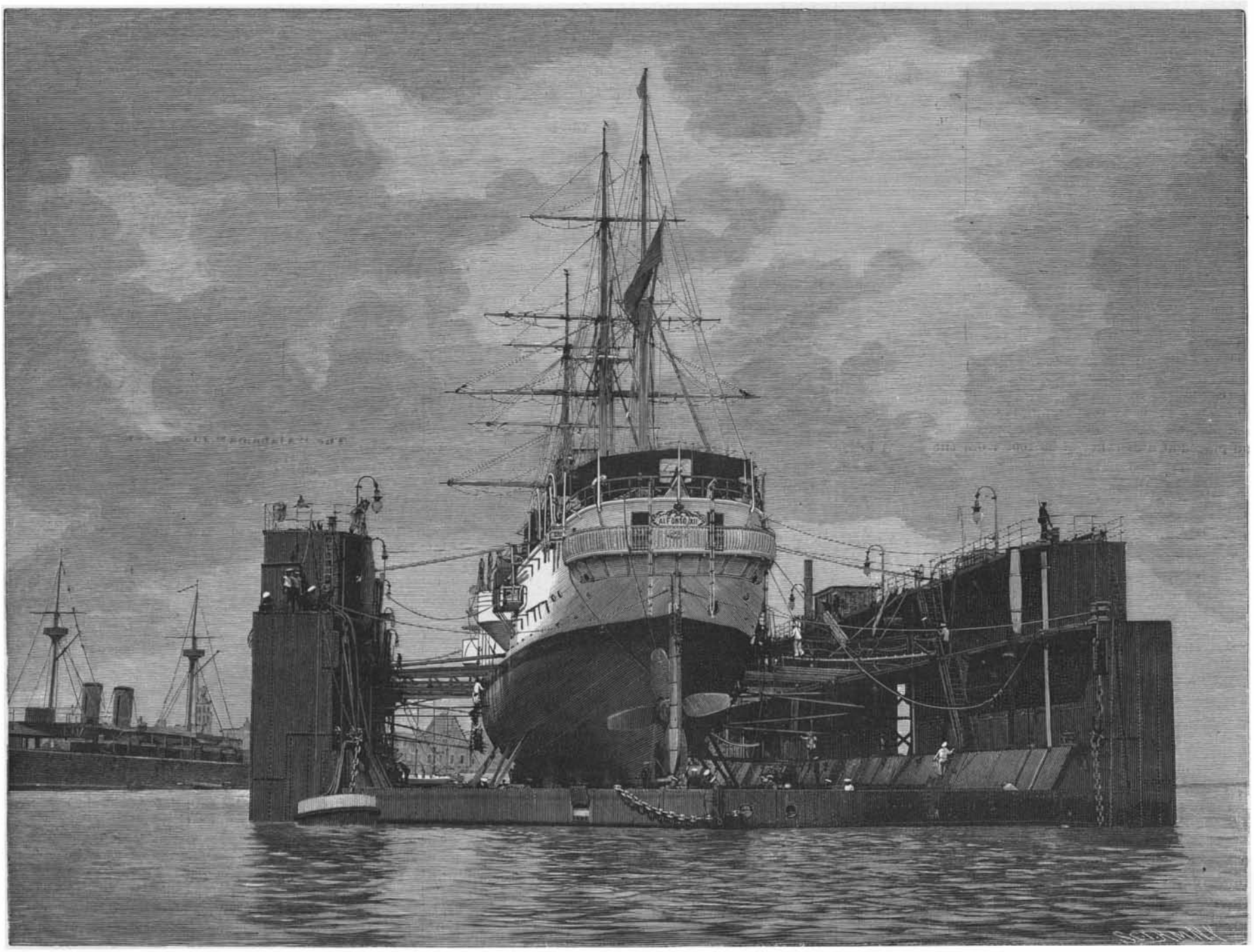
If such a dock were built of steel and its bottom were of sufficient strength to carry a vessel on its middle length, it would be independent of the support of the ground and might be used as a floating dock. That belonging to the British government at Bermuda is a floating dock of this description. A floating dock is merely a watertight box or pontoon into which water can be admitted or pumped out as required, the ship being lifted or supported simply by the displacement of the pontoon, which, consequently, must be sufficient to carry the weight of the ship, that of the pontoon itself, and the weight of the walls of the floating dock. This requires a depth of water which is sometimes unattainable. The Havana dock combines in one single structure the advantages of both types. It is an ordinary two-sided floating dock of an over-all length, as stated, of 450 feet, with a lifting power of 22 tons per foot linear. It has the advantage that, having no end gates, such as are carried by the dock at Bermuda, a ship of a greater length than the dock may be received, the ends of the vessel overhanging the dock to a considerable extent, if necessary. The dock consists essentially of the pontoons, which afford the required buoyancy, the high sides or walls which regulate the descent of the pontoons below the water and also afford the necessary stability, and the movable caisson or gates, which latter are only used when it is required to increase the lifting power of the dock.

In the Havana dock each pontoon is divided into four watertight compartments, and each wall is divided below the engine deck into five watertight compartments. Each of these can be emptied of water by means of an electrical pumping installation, which consists of two generating plants, one for each wall, which are furnished with connecting cables, so that each can serve the whole dock. The pumping machinery is capable of lifting a warship in two and one-half hours.

An important feature of the dock is the arrangement by which any portion of it can be examined, cleaned, and painted. Each pontoon can in turn be detached, lifted, and hung on the side walls, where any necessary work can be done upon it. The underneath portion of the walls may be exposed for cleaning and painting by careening the structure. It is this quality that gives the dock the name of self-docking.

After its completion the dock was manned by a captain, officers, engineers, and crew and towed successfully across the Atlantic from the English yard where it was built to Havana Harbor.

The manila hawser used for the towing was 22 inches in circumference and weighed about five tons. The total cost of the structure was $900,000.



THE HAVANA FLOATING DRY DOCK.

A Higher Peak than Mount St. Elias.

The report from the geological survey party under Mr. G. H. Eldredge, which has just returned from the Cook's Inlet country, asserts that it has discovered the highest mountain in North America. The peak, which is higher than Mount St. Elias, is situated in Alaska at the right of the Sushitna River. The government topographical engineer took triangulations, and, according to his calculation, the height of the peak is more than 20,000 feet. The mountain was named "Bullshae," which was the exclamation of the Indian guide when the peak was discovered. The mountain is extremely precipitous, and the members of the survey are of the opinion that the ascent will be almost impossible.

A BRAZILIAN correspondent writes as follows: Machines for treating coffee, used in Brazil, are made in the United States, but require improvement in view of local conditions. Thus the coffee driers are very unsatisfactory, and the inventor of a thoroughly effective drier would reap a fortune in Brazil. Driers as now made use too high a temperature and the product is not uniform. It seems the solution of the problem would lie in the use of comparatively low temperatures and of an exhausting pump.