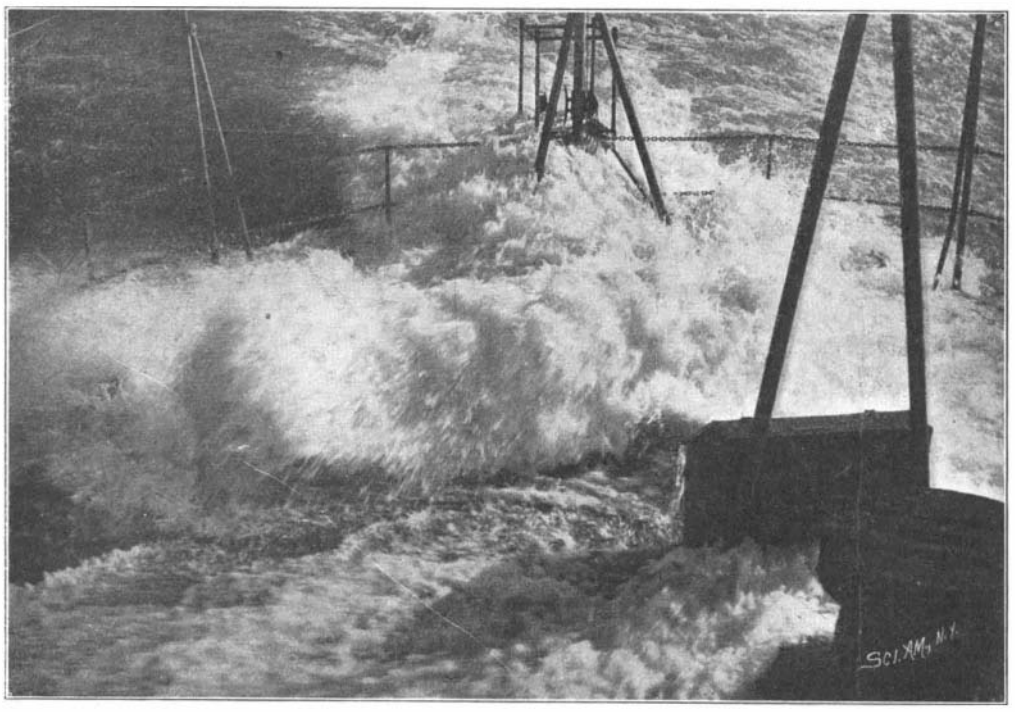
THE NEW MONITOR "WYOMING."

The monitor "Wyoming," herewith illustrated, is one of the four monitors ordered by the government in 1898. The "Arkansas," "Nevada" and "Florida," now building in eastern yards, are identical. Their dimensions are, length on water line, 252 feet; extreme breadth, 50 feet; displacement on draft of 12 feet 6 inches, 3,218 tons. Watertight bulkheads, electric lighting and other conveniences for officers and crew are provided in as perfect detail as on ships of five times the tonnage.



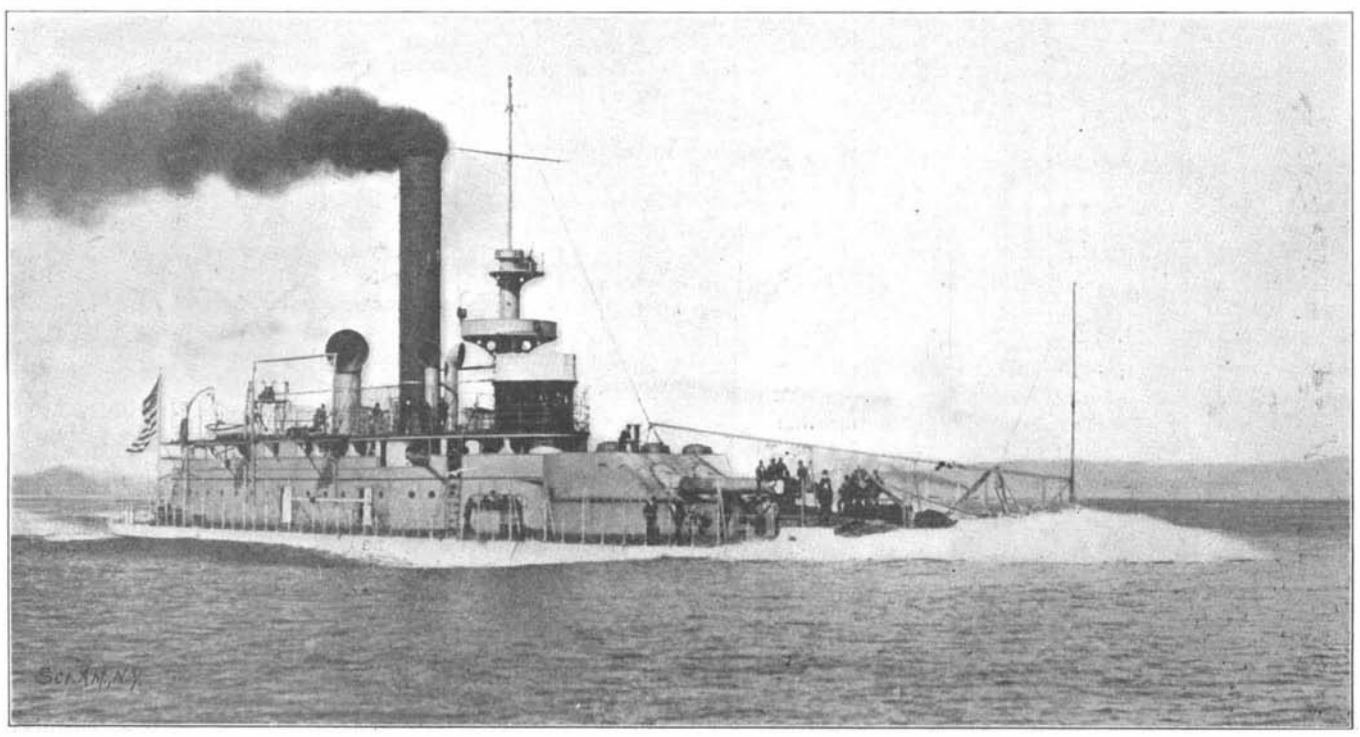
TAKING IT OVER THE STERN AT 11.8 KNOTS.

The armament of the "Wyoming" is heavy for a vessel of her size and class. It consists of two 12-inch breech-loading rifles, four 4-inch, three 6-pounders, six 1-pounders on the main deck with two of the same caliber in the fighting top. Forward is the armored turret protecting the 12-inch rifles. The hull is protected by steel armor, which for 108 feet amidships is 11 inches thick, diminishing to 5 inches at armor shelf, The belt extends from 2 feet 6 inches above the water to the same distance below, gradually tapering in thickness from 7 inches (just beyond the 11-inch belt) to 5 inches at both extremities. The engines are triple expansion, with cylinders 17, 26¼ and 40 inches respectively in diameter, with stroke of 24 inches. At 200 revolutions the engines develop 2,400 horse power.

There are four Babcock and Wilcox boilers with an aggregate heating surface of 8,800 feet and grate surface of 200 feet. A pressure of 250 pounds is developed at forced draft. Vessels of the "Wyoming" class are for purely defensive purposes.

The accompanying photographs, which are some of the most striking of their kind ever taken, were made on board the "Wyoming" when she was undergoing her trials, and they give a very impressive idea of the difficulties which a gunner on one of these monitors labors under when he endeavors to lay a 12-inch gun if the vessel is pitching or rolling in a heavy sea. Although the sea that was running on the occasion of her trials could not be called heavy for a vessel of the ordinary type, with a freeboard of say from 14 to 21 feet, it is evident that the monitor "Wyoming" made pretty rough work of it. At the bow there was a mass of broken water, and solid sea boiled up on deck, while spray was thrown high into the air. For the end-on position in which these vessels would prefer to do most of their fighting, there would be probabilities of poor marksmanship with showers of spray and broken water and the tops of the adjoining waves interfering very seriously with the gunner's aim. A heavy sea followed in the wake of the vessel, curling over and breaking inboard. Another feature that prevents good marksmanship on a monitor is the fact that her shallow depth and great beam render her very quick in her rolling and pitching movements. However, these monitors are intended for harbor defense, where the probability of heavy weather is somewhat remote. The pair of 12-inch guns which constitute their main armament are about the most powerful weapons of their class afloat. They are capable of penetrating nearly 20 inches of Krupp steel at a distance of 3,000 yards. Hence, as floating batteries co-operating with a system of land defenses, these vessels would find a limited sphere of usefulness; and it is not likely. under the present conditions of warfare, that they will ever be called upon for deep-sea work.

BOW OF THE "WYOMING" AT 11.8 KNOTS.



MONITOR "WYOMING" DOING 12.37 KNOTS ON THE MEASURED MILE.

Gas Arcs.

A number of years ago Denayrouze endeavored to obtain a higher flame temperature inside the mantle by blowing the required amount of air into the burner.

According to the Progressive Age, it was realized that the maximum temperature could not be obtained inside the mantle unless there was enough air thoroughly mixed with the gas to obtain complete combustion. The ordinary Bunsen burner did not and does not now draw in enough air for complete combustion and this makes it necessary to employ special devices when high efficiency is desired. The Bandsept construction has not been adopted in this country, but the Kern burner, which is a development along the same line, is now in satisfactory use among our gas consumers, and depends upon superior design and construction for its high efficiency, chimneys being dispensed with in the domestic installations. These burners seem to have gone as far as design alone in the injector and mixer construction can go. The Denayrouze idea of adding air under pressure possesses the disadvantage of requiring auxiliary apparatus which must also be maintained, thus limiting the field of application very much, although the English tests of the Suggs and Keith apparatus do not by any means point to failure.

In Germany there was another idea conceived, and the product put on the market during 1899 and 1900, which obtained the desired result by connecting the small globe surrounding the mantle to a tall chimney above it, which produced sufficient draft to suck the consumed gases rapidly through the mantle, and so much reduced the pressure inside it as to create an increased upward draft of air through the Bunsen tube. The quantity of gas passing through the jet depended upon its size and the gas pressure and was very little influenced by the increased suction in the Bunsen tube, so that the desired increase in the proportion of air was obtained, a high degree of temperature produced and the resulting incandescence far exceeded that of ordinary burners. This was further increased by permitting the gas to become heated before entering the burner.

This design is known as the Lucas lamp and to the inventor is due the credit of providing the gas industry with a means of displacing electric arc lamps, for our popular gas arcs are the outgrowth of the Lucas principle.

A Curious Accident.

A curious accident befell an electric street railroad car in the north of England recently during a thunderstorm. At the terminus a car was waiting to begin a journey, and several passengers had taken their seats both inside and on the outside of the car. There came a vivid flash of lightning, followed immediately by a terrific report on the car, and the whole interior of the vehicle seemed to be ablaze. When the flame had vanished the car was filled with smoke. The lightning had struck some trees, the branches of which overhung the stationary car so that they conducted the lightning current to the vehicle, and upon coming in contact with the current propelling the car, fused. Fortunately no damage was caused beyond the fusing, though the vehicle might have been set ablaze.