## THE WILLSON AUTOMATIC GAS BUOY

A MONG the many noteworthy improvements effected by the Department of Marine and Fisheries during the past few years in the aids to navigation, there is none which promises to have as far-reaching an effect as the invention, exploitation and adoption of the automatic gas buoy.

The invention of the original steamer-tended gas-lighted buoy marked a very considerable advance in the improvement of the recognized aids to navigation. The illuminant of this buoy was an extra refined oil gas, stored in the body of the buoy at very high pressure.

A succeeding step of great importance in the development of the gas buoy was the successful experiment under the auspices of the department of Marine and Fisheries in 1902, to determine the suitability of acetylene for the lighthouse and buoy service.

The advantage of the compressed acetylene buoys over the former oil-gas buoys were as follows :—

 For the quantity of gas burned acetylene produced five times the light of the oil-gas.

(2) Acetylene could be generated in a portable apparatus on the deck of a steamer, while oil-gas had to be transported in storeholders from gas works ashore.

(3) Over ten atmospheres pressure more acetylene can be compressed in a holder than oil gas, as the latter begins to deposit liquid hydro-carbon at or before this pressure, thereby reducing the illuminating power of the gas. The Willson Automatic Gas Buoy, in which the Department of Marine and Fisheries now possesses the means of placing the Canadian buoy service upon an entirely automatic basis, is a product of the ingenuity and skill of Mr. Thomas L. Willson, of Ottawa, whose name is as intimately associated with the practical development of acetylene as an illuminant as is that of Edison with electricity.

This automatic gas buoy carries its own charge of carbide in a generating tube of welded steel and actually produces its own gas as required for consumption.

The development of this invention can be said to have fairly revolutionized gas buoy practice and has had already a far-reaching effect in altering the plans of the Department of Marine and Fisheries for the extension of its service, the new buoy, after an exhaustive series of tests, having been finally adopted as the standard type in the department. All the additions to the gas buoy service of Canada during the season of 1904 were of this type of buoy.

The numerous and important advantages possessed by this buoy over the compression type were given by the Commissioner of Lights, Mr. Fraser, in his annual report for 1904 (blue book page 62), as follows —

(1) In the compression type the gas is raised to a pressure of 225 pounds per square inel; in the automatic type the maximum pressure does not exceed a few pounds per square inch.