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The whistle at the top of the escape pipe for the steam is usually 10 inches diameter and 1 foot 6 inches high. The cost of the steam fog-whistles, without the buildings, tanks or water arrangements, is about \$2,000, but the consumption of coal is necessarily great, and a plentiful supply of water is required. Owing to the expense of keeping this description of fog alarm in operation, the Department has not erected any new ones of late years. The description of fog-horn, which has recently been adopted, is the Champion automatic fog horn, and it requires very little fuel and water, and has given satisfaction. The sound is produced by compressed air passing through the horn, instead of steam. The machine consists of a tubular boiler, 5 feet 6 inches high, 2 feet 9 inches diameter, a large air cylinder 3 feet 8 inches diameter, 3 feet 10 inches long, to which is attached a horn, carrying a powerful reed, and a steam cylinder 2 feet diameter, with an automatic apparatus for the control of the supply of steam. Its action is as follows: Steam being turned on, enters the steam cylinder and causes a piston to ascend; attached to this piston, by means of their common piston-rod, is another piston working in the air cylinder, which is supported above the steam cylinder by means of four columns attached to the bed plate. By this means the air contained in the upper cylinder is forced through the reed, the tongue of which is of steel, 8 inches long, 2 inches wide and $\frac{5}{16}$ of an inch thick, causing it to vibrate rapidly, and thus emit a powerful sound. When the pistons approach the top of their stroke, the lower one, by a very simple contrivance, closes the supply valve and opens the exhaust valve, which allows the expended steam to escape, consequently the pistons, by their own weight, gradually descend, thus allowing the air cylinder to fill with air again. When the pistons reach the bottom of their stroke, the upper one reverses the movement of the valves, when the above operations are automatically repeated *ad libitum*. By means of an adjustable valve on the exhaust pipe, the intervals between the blasts can be closely adjusted. The amount charged for these machines by the patentee is \$2,000, but they can be made by competition for \$1,000 each, when a number are taken. They are well suited for localities where it is difficult and expensive to provide fuel and water, but it is doubtful if their sound could be heard at as great a distance as that of the steam whistle. We have nine automatic fog-alarms in use, and the Department is now about to establish twelve more in different parts of the Dominion where fog frequently prevails.

The Courtney automatic whistling-buoy, of which we have eight in Canadian waters, is a recent American invention, and has been found to be of great service to shipping, in connection with our lighthouse system. It is of no use in completely smooth water, without any swell, but requires considerable rolling sea to make it work effectively, and under such circumstances, it emits a loud blast, similar to a compressed air fog-horn worked by steam. The large sized buoy is 10 feet in diameter, and has a hollow iron cylinder about 30 feet long, open at the lower end underneath it, which is filled with water, and as the buoy goes up and down on the