which diagrams have been shown, have an admission or steam valve and an exhaust valve for each end of the cylinder, making four valves in all. Either of these valves can be changed without disturbing the action of the others. Fig. 1 is a diagram from a plain slide-valve engine, in which a single valve does both the admitting and exhausting for each end of the cylinder, and any change in one point changes all the others. In this class of engine the points of cut-off, release, and compression always occur at the same point in the stroke, whatever the number of revolutions of the engine or pressure of steam. In these two classes of engines the governor controls the speed of the engine in an entirely different manner in each case. As we have said before, the point of cut-off in the automatic engine is varied by the governor; but in the slide-valve engine this point is always at the same point of the stroke, and does not vary. The governor of a slide-valve engine controls the speed of the engine by opening or closing, more or less as circumstances require, a valve in the pipe which carries steam to the engine. The wider this valve is open, the less obstructed is the passage to the cylinder; and hence a higher steam pressure is obtained in the cylinder, and vice versa. In passing through this governing valve the steam is reduced in pressure on account of the obstructed passage, and still further reduced in passing through the ports, so that the steam line in Fig. 1 shows a continual falling of the pressure from admission to cut-off. This wire-drawn steam line is always seen on diagrams

The Steam Engine Indicator and What it Indicates.

The indicator diagrams shown in the preceding articles have all been taken from automatic cut-off engines. In this class of engine the governor controls the speed of the engine by automatically varying the point of cut-off. These engines, generally, and all of those from