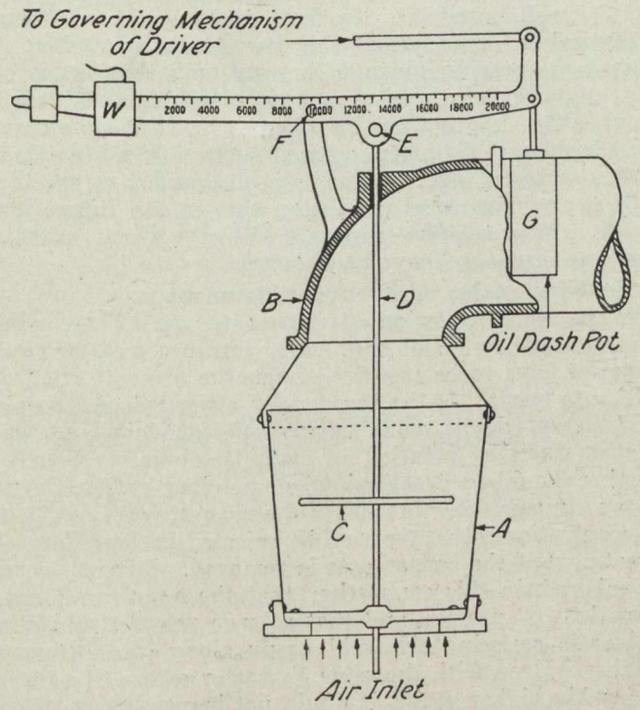
A CONSTANT VOLUME GENERATOR.

The Canadian General Electric Co. has developed a constant volume governor which can be attached to their centrifugal compressors for blast furnace work. Its principle can be understood from the diagrammatic arrangement shown in the accompanying figure. The governor is placed on the intake end of the compressor, the air being admitted through à conical pipe (a) into an elbow (b), which is direct connected to the inlet flange of the compressor. In this conical pipe is



mounted a horizontal float (c) suspended from a vertical rod (d). The latter is connected to a beam (e) which is free to move about a pin support (f). The beam is graduated to indicate the amount of air in cubic feet per minute that the compressor will deliver when the sliding weight (w) is placed at any particular graduation. An oil dashpot (g) is attached to one end of the beam to dampen any too violent oscillations. The method of operation of this governor when furnishing air to the blast furnace is as follows:

Suppose that 25,000 cu. ft. of air is to be delivered to the blast furnace: The sliding weight (w) is set at the graduation mark 25,000 cu. ft., and the float (c) will assume a definite position with relation to the conical pipe (a). Let us assume that this 25,000 cu. ft. of air is being delivered against a pressure of 15 lb. per sq. in., that is, with the driver of the centrifugal compressor running at such a speed as to produce an air pressure of 15 lb. If, at any instant, the charge in the furnace becomes more densely packed, or if the furnace is slowly beginning to get into an unhealthy condition through the formation of slag, the resistance to the flow of air through the furnace is increased. With this increased resistance the centrifugal compressor can no longer deliver 25,000 cu. ft. of air, because it would take a higher pressure than 15 lb. per sq. in. to force this quantity through the furnace, and we may say that momentarily a less quantity is delivered. Just as soon as this occurs, however, the float (c) can no longer remain in its present position, because it is not sustained by the original volume of air passing by it. As the volume of air decreases the float (c) will start to drop, whereupon the rod (d) will immediately move the beam (e) into a new position. The end of the beam arm is connected with the governing mechanism of the driver by means of suitable levers. In the case of a steam turbine drive it will admit more steam to the turbine and speed it up. This higher speed will increase the pressure delivered by the compressor until the pressure is of sufficient magnitude to force through the original quantity of air, 25,000 cu. ft. per minute. As the turbine speeds up the pressure continues to increase slowly, and therefore also the volume of air, until the constant volume governor has almost returned to its original position. The governor will then keep the turbine running at the increased speed necessary to deliver the volume of air required. The constant volume governor therefore immediately responds to any change of condition in the blast furnace, and the compressor unit will speed up or down, depending upon whether a greater or less pressure is required to force through a constant volume of air. From this it can be seen that the constant volume governor responds instantly, long before the furnace operator could notice any change, and therefore the furnace is kept in a more uniform condition. This results in a larger output of pig iron of a more constant and better quality.

KIRKLAND LAKE.

A prospecting plant has been installed on the property of Harry Oakes, Kirkland Lake, and sinking begun on a vein that has long been recognized as one of the most promising in the district. On Oct. 15 the shaft had reached a depth of 50 ft., revealing a vein about 2 ft. in width, heavily charged with molybdenite and sulphides, and carrying free gold and telluride. The telluride, to all appearances, is identical with that found at the Tough-Oakes mine. The presence of molybdenite and finely disseminated sulphides point to a vein of like origin. As a result of prospecting during the summer two other parallel veins have been discovered, which, though carrying low values, give evidence of enrichment in sections. Mr. Oakes owns the greater part of Kirkland lake, under which he proposes doing considerable work.—J. W. M.

McINTYRE.

The Nipissing Mining Company, of Cobalt, has officially announced the release by the company of an option held on the McIntyre mines of Porcupine. The company took up an option of 1,500,000 shares on the McIntyre some time ago, at a price said to approximate 40 cents a share, and the transaction involved cash payments of $600,000 extending over a period of months. No reasons were given by the Nipissing Company for the release of the option.

DOME.

It is understood that the Dome Mines has let a contract for 30,000 feet of diamond drilling. Ten diamond drills will be started up immediately, and will be working all this winter. The work is being undertaken with a view of getting more precise information as to the extension of ore bodies between the "golden sidewalk" and the Dome Extension boundaries.

FOLEY-O'BRIEN.

It is understood that the Foley-O'Brien gold mine at Porcupine may be opened up again soon. Operations here ceased some time in the summer when the plant was burned down. It is understood that both shafts may be operated.