

filtration plant of excessive load and constant back washing at certain seasons of the year.

A new intake was completed in 1916, of riveted steel pipe, 25½ ins. diameter, 900 ft. long, laid in a channel blasted in the rock bottom of the lake and back-filled with rock, the pipe ending in a steel intake box of ample dimensions, securely anchored in about 20 ft. of water. A new suction well was blasted in the rock 10 ft. by 30 ft. by 15 ft. deep, and covered by a brick annex to the old building. The suction main was extended to this well and the old well left for the supply of the steam reserve. The cost of the intake and suction well was about \$38,000. This was higher than originally estimated, due to the impossibility of maintaining drill boats, dredges and tugs at work in the lake except in unusually fine weather.

At this time an automatic device was installed for coagulant and hypochlorite in place of the usual hand-controlled feed apparatus.

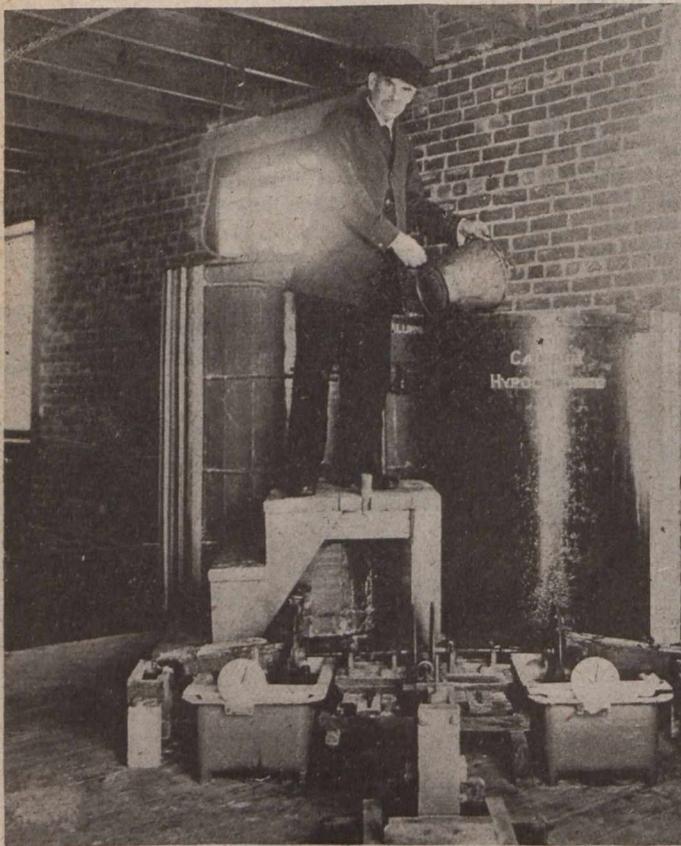


FIG. 3—AUTOMATIC DEVICE DESIGNED BY THE "HYDRO" MUNICIPAL ENGINEERING STAFF FOR FEEDING COAGULANT AND HYPOCHLORITE

The new device is mechanically driven by a turbine placed in the mouth of the intake pipe within the suction well, of sufficient size to operate the device under velocity head only, and with as low a discharge as 300 g.p.m.

The power required being extremely small, the speed of the turbine is proportional to the flow of water in the intake, and the device for feeding each chemical solution consists of a revolving disc on which are mounted small buckets which dip into the solution, the level of which is held constant by float control after the manner commonly obtaining in orifice boxes. The buckets discharge into a trough, from which direct pipe connection is made to the suction well. The speed of the buckets is adjustable over a wide range by friction disc drive from the turbine for any strength of solution or rate of dosing. The device arranged for two solutions is shown in Fig. 3.

Previous to the year 1917, it was necessary to hold steam at 40 lbs. pressure on the boilers as reserve for the steam pumps for fire service, and for occasions when electric power went off. The cost of this reserve becoming serious

with the rise in price of coal during the war, it was decided to replace this part of the plant with two gasoline-operated units drawing water from the new suction well, and to abandon the old well and intake.

One of these units was installed about a year ago in place of one of the steam pumps, and consists of a 1,200 g.p.m. pump coupled to a six-cylinder engine, running at 1,500 r.p.m., complete with electric starting motor and storage battery, this battery being maintained in proper working condition by a small generator which can be operated at any time by belt from the coupling of one of the motor-driven domestic pumps. This unit is shown in Fig. 1.

The main gasoline tank is located in the usual manner, underground and outside the building, with the gasoline pump and auxiliary tank in a small concrete annex, an extension shaft and tell-tale passing through the wall for the purpose of operating the pump from inside the station. The cost of this unit installed was about \$7,000.

An automatic valve has been designed for cutting off the gasoline from the engine should the operator forget to do so when he shuts down the unit, in which case a leaking carburetor valve might allow gasoline to escape. This valve is controlled hydraulically from both the suction and discharge of the pump, and operates when the engine stops, independent of pressure on the pump from the town mains.

It has been sought by the above arrangement, and by fire walls and fire doors separating the electrical from the gasoline equipment, to make the gasoline reserve for fire thoroughly reliable and satisfactory when in charge of competent operators.

The total capacity for fire service under 100 lbs. pressure amounts to 3,400 g.p.m., made up of 1,200 g.p.m. for the gasoline unit, 1,700 g.p.m. for the electric units and 500 g.p.m. for the steam plant.

The steam unit is to be replaced with a second gasoline unit, and an additional unit for domestic service is under consideration.

The book value for the filter plant is \$8,700, and for the electric pumping plant \$9,200.

CANADIAN GOOD ROADS ASSOCIATION

AT a meeting held last Thursday in Toronto, the executive committee of the Canadian Good Roads Association decided that the 1920 congress and exhibition should be held in Winnipeg. Plans were also discussed for an educational campaign for the purpose of stimulating interest in the good roads movement, and to insure that full advantage will be taken of the federal grant of \$20,000,000.

Details of the educational campaign will be announced after another meeting of the committee to be held September 25th in Ottawa, but it is understood that this campaign will consist of the use of a limited amount of display advertising, and the preparation of interesting articles for use by the newspapers as reading matter. An office will be opened in Montreal and a staff engaged in order to carry on the work upon a more energetic basis. Contributions will be received from any interested firms or individuals, and it is expected that aid will also be secured from the Dominion government and the various provincial governments.

Regarding the selection of Winnipeg, it is interesting to note that this will be the first time that the congress has gone west of Toronto or Hamilton. Winnipeg was selected for the place of the convention in 1917, but owing to railway congestion and other war-time conditions, plans for holding the convention there had to be abandoned, and it was held in Hamilton instead. These difficulties have now disappeared, and the Manitoba members of the association are enthusiastic about obtaining the convention next spring for their province. Interest in good roads is increasing throughout the west. Vancouver has already requested the 1921 convention.

The executive committee of the association consists of S. L. Squire, Toronto, president; Andrew F. Macallum, Ottawa, first vice-president; Geo. A. McNamee, Montreal, secretary-treasurer; Russell T. Kelly, Hamilton, director; and J. A. Duchastel, Montreal, past president.