

the scale value being 17 inches to 1 of mercury. To obtain a definite knowledge as to the manner in which the waters respond to the atmospheric pressure changes, the lake records and corresponding sensitive barograph traces have been tabulated in conjunction with the bi-daily synoptic weather charts, under the following headings:—

LAKE RECORD.

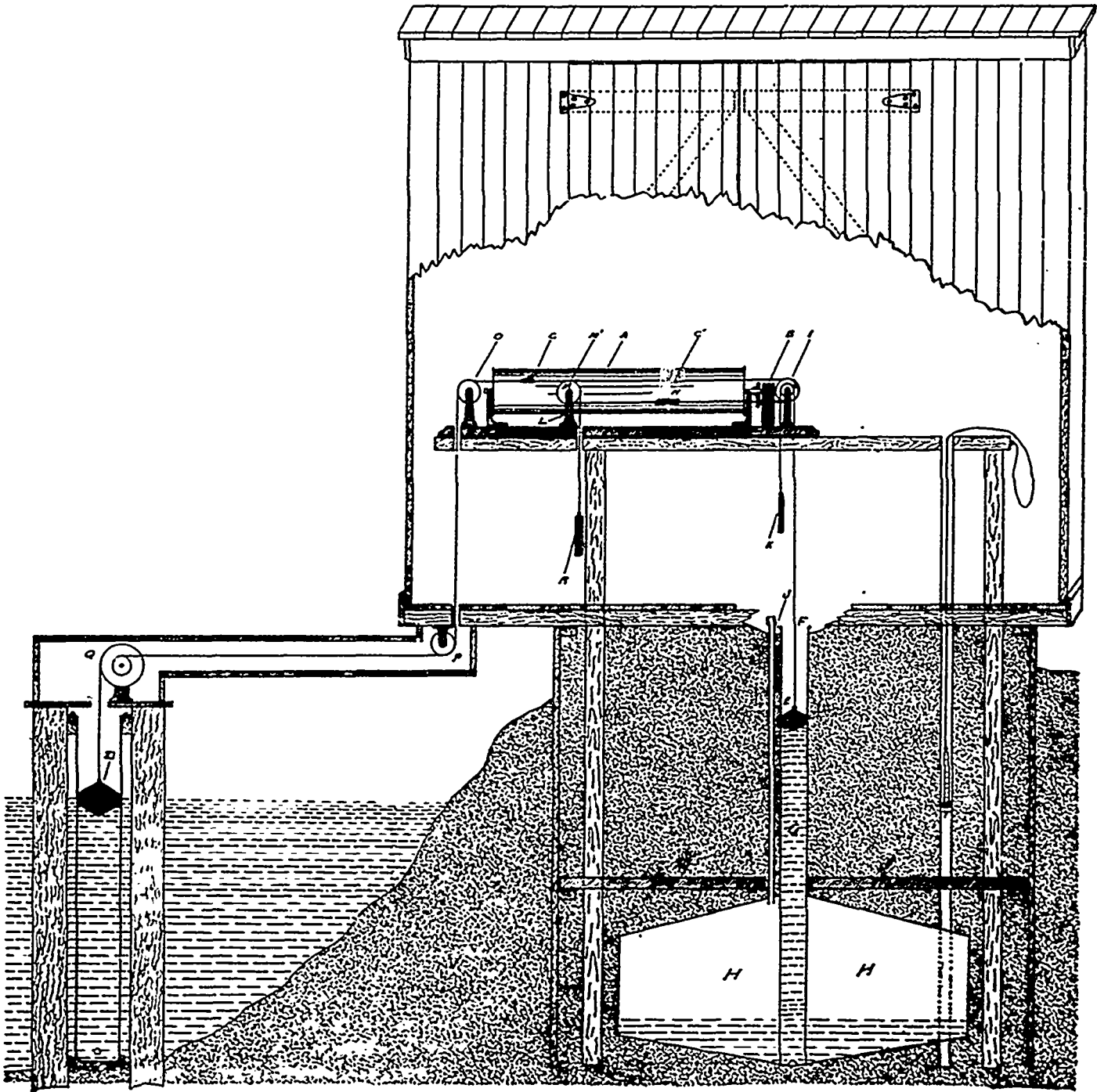
Date.	Time 8 a.m. 8 p.m.	Amplitude	Time Interval		Condition during last 12 hours.	
		In Inches.	7-8	8-9	Amplitude.	Mean Time Interval.

AIR BAROMETER.

	Amplitude	Time Interval		Condition during last 12 hours.	
	In Inches.	7-8	8-9	Amplitude.	Mean Time Interval.

same time sheet. This now supersedes the former instrument at the Humber.

The following is a brief description of this instrument as shown above, which is placed in a specially constructed house close to the water's edge: *A* is a cylinder, three feet long by twenty-four inches in circumference, which, by means of the clock *B*, completes one revolution every twenty four hours. Upon this cylinder rest two self inking pens *C* and *C'*, whose movements (though impossible to show in the above section) are quite independent of each other. *C* is actuated by the lake level float *D*, and *C'* by the float *E* in the air barometer *F*. This barometer consists of a vertical pipe *G*, four inches in diameter which passes



HYDRO-AEROGRAPH.

Position of Lows and Highs, with barometer readings at their respective centres; barometer reading, weather wind and precipitation at Toronto, and remarks column

As the information obtained from these tabulations has clearly shown a marked correspondence between the air and lake movements, the writer has recently devised a simple instrument to record both undulations upon the

down through, and is attached to the bottom of a cylindrical air chamber *H*, four feet in diameter, constructed of a heavy gauge of steel. This chamber is hermetically sealed with the exception of two small holes at the bottom of the central pipe *G*. To complete this instrument, water is poured into the central pipe *G*, until the confined air in *H*, is compressed sufficiently to sustain a column of water,