THE PERPETUAL MOTION WHEEL.

Editor Canadian Engineer:

Sir,—Re the pretty diagram of gravity motor in April number, it seems as if the inventor had overlooked the real centre of gravity of the movable balls which are to produce by their position movement or rotation. The point at C, where the track swung from the spoke, corresponds to the suspension point of the pan of a pair of scales or balances and the ball on the right exerts no more effect on the wheel than the one on the left. Further, the track cannot be level, as the pendent weights B will swing to right or left until compensation for ball J is reached. The main defect is that the inventor has overlooked the point that all the apparatus on the end of each spoke is only as efficient as its total weight. This being equal on the four spokes, the point of balance is obtained and the wheel will stand still. Were the wheel to be revolved by some external power the weights B would fly out by centrifugal force and the movable weights would not be of any effect whatever. Looking a little longer at the diagram it may be seen that there is no necessity for the automatic track, as the balls J would, if fixed, occupy the best positions for exertion of force, on the upper spoke and on the lower spoke, the centre, thus inactive, on the right hand spoke farthest from the centre (not of gravity) of the wheel on the left nearest to the centre of the wheel. In the diagram the automatic track has really put the ball J on the lowest spoke on the wrong side of the spoke. The design is pretty but it does not seem to bear analysis well.

J. M. WILLIAMS.

Hamilton, Ont., 20th April, 1903.

WEIGHT OF ICE ON WIRES.

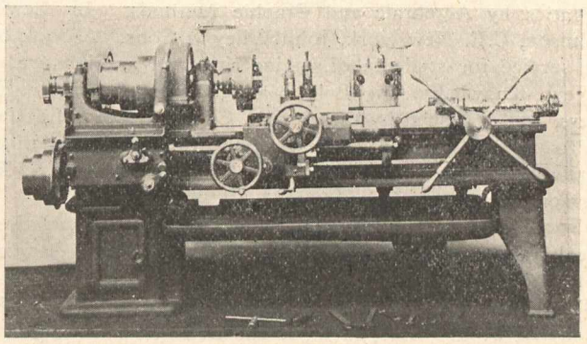
Editor Canadian Engineer:

Sir,—In your last issue, under the heading "Ice-laden Wires," C. Baillairge asks for information re the weight of ice on wires. A few years ago Hamilton experienced a snowfall that covered trees and wires with wet snow until they reached the breaking point referred to by your correspondent. The amount of the accumulation was so great that over a mile of posts with their wires broke down. Before the posts broke the wires sagged to a distance, in cases, of five feet from the plane of the insulators. This must have been great stretch in the wires. A corner post which had received, owing to a street draught, an extra deposit of snow, and also having an extra number of wires at an angle turn, parted its guy wires and went down, and a quarter of a mile of posts cracked off one after another until a point was reached where the wires were fewer and the posts stood. The strain reached several ways. On the absence of the pull of these wires being felt, lines of breaking started in different directions, and many posts went down. The point which Mr. Baillairge asks for, is how much snow was on these wires. I weighed a section of wire six inches long, which had retained its coating of frozen snow after it fell. It weighed, approximately, 8 ounces, and the calculation I made at the time gave six tons of snow between two poles. This would hold for about two-thirds of the total poles that went down. The very great sag astonished me at the time, and it seemed impossible for wire to stretch so far and not break. The facts fit in with the approximation of weight here recorded. Poles eighteen inches in diameter were snapped off at the ground.

J. M. WILLIAMS.

CAPSTAN LATHE WITH CHASING SADDLE.

The following is a description of a Capstan lathe with patent chasing saddle, as made by Alfred Herbert, Ltd., of Coventry, England. While designed mainly for chuck work in cast-iron, steel or brass, the machine tool is well adapted for work from the bar, particularly where the chasing of square threads or of fine and accurate threads, either internally or externally, is required. The bed is of unusually deep and massive section, and is strongly ribbed internally. It is fitted with an oil pan of ample size, and provided with cabinet and cupboard for holding tools, etc. The headstock has friction back gearing, enabling the machine to be instantly changed from single speed to back gear without stopping the spindle. This arrangement in conjunction with the two speed countershaft, enables four different spindle speeds



Herbert Capstan Lathe.

to be instantly obtained without shifting a belt. By changing the belt on the cone-pulley, 12 spindle speeds are obtainable. The spindle is hollow, admitting bars up to 2-in. in diameter, and the gearing is enclosed by neat cast iron guards. The chasing saddle is provided with our patented arrangement for chasing from a leader. Four different pitches, either right or left hand, can be cut by each leader, the change being made by levers. A special saddle can be fitted when required for taper-turning, boring and chasing. Adjustable dead stops are provided for both the longitudinal and transverse movements. The capstan slide is fitted with automatic feed, having six changes, ranging from 21 to 160 revolutions per inch of traverse. Six automatic and dead stops are provided, by which each of the six tools is automatically stopped at exactly the position desired, entirely independent of the other five tools.

NEW WESTERN BRANCH OF FAIRBANKS.

The Fairbanks Company, of Montreal, have opened up a branch in Winnipeg, where they are now having erected a six-story warehouse, which will have a front of 54-ft., and will be 100-ft. deep, extending from Prince and Arthur streets, and fronting on both of these streets. The site is in the heart of the Winnipeg business district and will afford their customers great convenience in doing business with them. The branch will be in charge of F. Ross Newman, formerly with the Fairbanks Company, Montreal, and previous to that purchasing agent of the Laurentide Pulp Company. E. R. Whitehead will be cashier and J. J. Jessup will look after the Gas and Gasoline Engine Department. John Aiken also goes from Montreal to look after the shipping department. Until this warehouse is constructed the Fairbanks Company have temporary quarters which will enable them to look after this season's business. Henry J. Fuller, general manager for the company for Canada, has just returned from completing arrangements in Winnipeg, and is very enthusiastic about the prospects of the Northwest, and especially those of the company with which he is associated. The Fairbanks' scales have been used for many years in the grain elevators in the Northwest, and the increasing volume of business made it absolutely necessary that a stock should be kept in Winnipeg. In addition to this leading line the usual lines carried by the Fairbanks Company will also be handled in Winnipeg, including Fairbanks' valves, gas and gasoline engines, full line of steamfitters' and plumbers' supplies. The Vancouver branch of the company, which was started only about a year ago, is meeting with great success, and with the three warehouses in full operation the Fairbanks Company will be in position to meet the requirements of their customers to better advantage than ever.

—United States financiers, including the Standard Oil Co., which recently bought the volcano of Popocatepetl, Mexico, for $5,000,000, are about to build a cog-wheel railway up the mountain and excavate for sulphur.