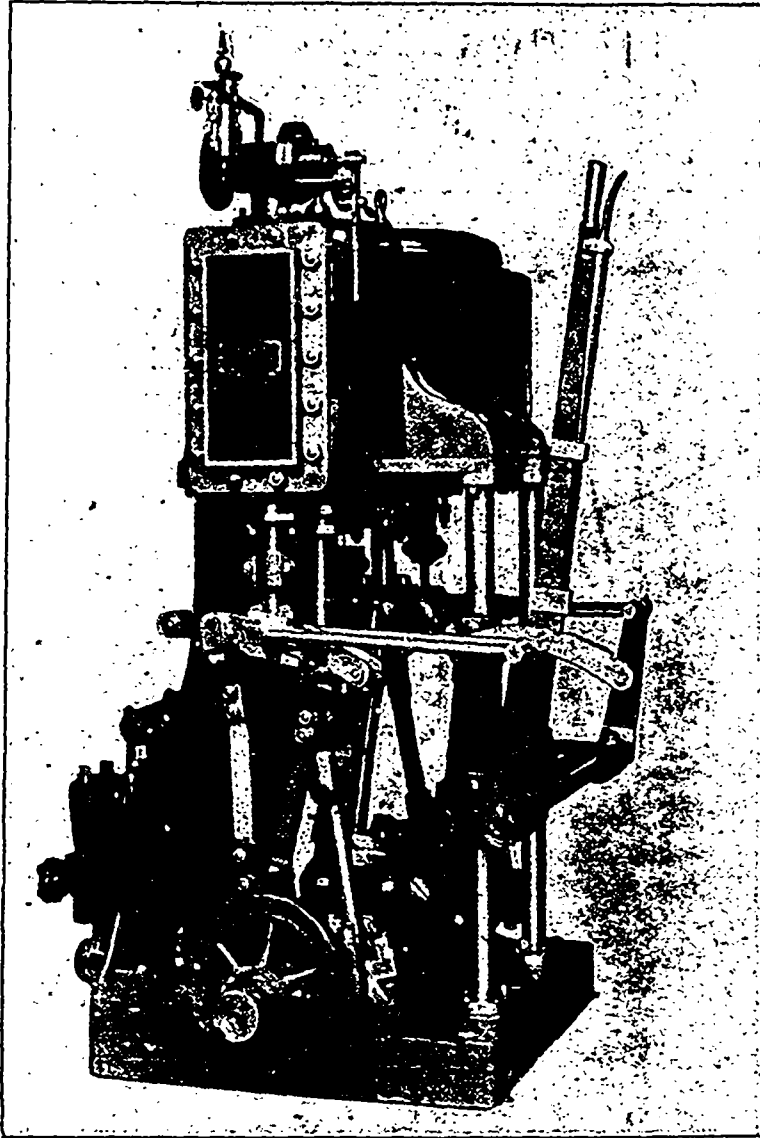


## MARINE ENGINES AND PROPELLERS.

Among the exhibits of Canadian machinery at the World's Fair, the marine engines and mining machinery shown by the F. G. Beckett Engine Co., of Hamilton, attracted much attention and were highly spoken of by visitors. This well-known firm (formerly the Killey-Beckett Engine Co.) make a specialty of marine engines and propellers, and have recently brought out some new ideas which are worth more than a passing notice. The illustration here shown is a photo-engraving of a fine type of marine engine recently supplied to one of the new British Columbia sealers. This is a "fore and aft" compound condensing engine designed for a



boat of about 120 feet length and develops 80 to 100 h.p. The vessel in which the engine is placed has a novelty in the shape of a feathering propeller or propeller with an adjustable pitch. It is made of bronze metal with two blades, connected by levers and rod to the shaft inside, the levers being there connected by a screw, the turning of which will set the blades to any pitch desired. The main object of having this adjustable pitch is that the vessel, which is rigged for both sail and steam, may run under canvas without any impediment in the shape of a dragging screw. When it is desired to run the vessel under sail only, the propeller, which has only two blades, can be placed with blades in a vertical position, so that to all appearance they form simply an extension of the stern-post and thus oppose no resistance to the water. To give all the

power needed the blades are made wider than in the case of three-blade propellers, and they can be made of either bronze or steel. The trials of this boat show that both engines and propeller are a pronounced success. The style of screw could be very well applied to our lake yachts. The owner of a yacht so built need never trouble himself about being becalmed.

THE machinists of Hamilton organized a branch of the International Association of Machinists at a meeting held under the presidency of H. E. Easton, on Nov. 4th. This is the 418th lodge of the order, and the 18th in Canada.

THE committee of engineering societies of the Columbian Exhibition have sent us their thanks for copies of THE CANADIAN ENGINEER furnished during the World's Fair, and in their letter they remark that "such literature has very greatly helped them in their investigations and made their headquarters a pleasant place of resort."

ON Thursday afternoon, Nov. 2nd, a very interesting test was made in the testing laboratory of McGill University by Prof. Bovey and some of the fourth year students, of a specimen of British Columbia spruce. The specimen was a large beam 25 ft. 5 in. long, 8½ in. wide, and 17½ in. deep, and was taken from a tree felled in the Skeena River district, B.C., 600 or 700 miles north of Victoria, some time about the end of December, 1892. The beam was shipped from there by Messrs. Claxton, who furnished it to the University, and arrived in Montreal in August, 1893. It was now subjected to a transverse test in the Wicksted machine on supports 24 ft. apart on centres, the centre load being applied by increments of 500 lbs., and the deflection noted for each increase. The beam failed under a maximum load of 38,250 lbs., and not, as is usual, by the rupture of the fibres on the tension side, but by the crippling of the side in compression. The skin stress developed was 21,500 unusually high, being a little over 6,000 lbs. per square inch, while the coefficient of elasticity was 1,670,000. The strength of the British Columbia spruce is, therefore, double that of ordinary spruce or pine. Among those who witnessed the test were T. C. Keefer, C.E.; P. C. Peterson, Chief Engineer of the C.P.R.; John Kennedy, Montreal Harbor Engineer; T. J. Claxton, F. J. Claxton, — Trevillick, Senator MacInnes, a representative of THE CANADIAN ENGINEER, and several young engineers from the city. The engineers and professors were struck with the remarkable strength and toughness shown by this sample of British Columbia wood.

A LIGHTNING flash light of 4,000,000 candle power casting a beam visible 63 miles in clear and 21 miles in thick weather, is being placed in the new lighthouse, Penmarc'h Point, Brittany. Next to the great search light at the World's Fair, this is the strongest light in existence.

EXPERIMENTS are being made with a light brick for ceilings, etc., where crushing strength is not so much an object. Ordinary clay and sand, and about forty per cent. of fine sawdust, are mixed and moulded under heavy pressure. The sawdust disappears in burning.