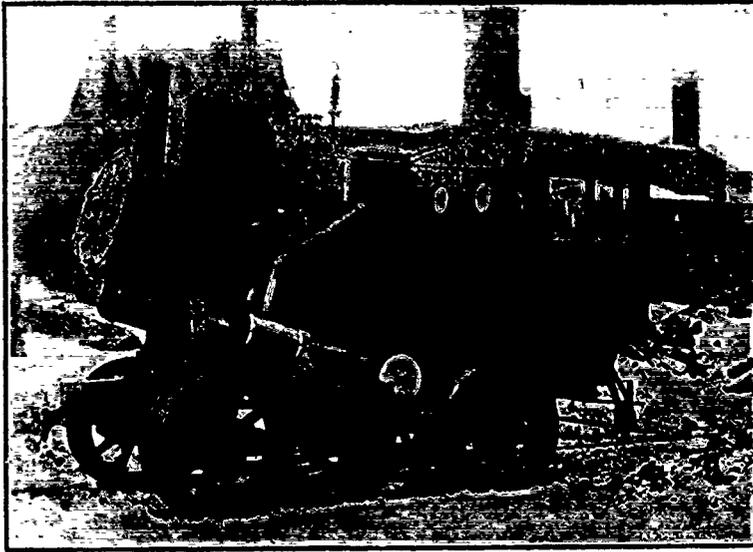


A LOGGING LOCOMOTIVE.

We illustrate on this page a logging locomotive of rather novel design. This machine was designed and built by the Robb Engineering Company, of Amherst, N.S., for Mr. Emile Stehelin, formerly of Paris, who has emigrated to Nova Scotia and taken up an extensive tract of timber land containing valuable spruce and other woods, which he manufactures into dimension timber and deals for export. The locomotive is used for hauling the lumber from the mills at Nouvelle France, N.S., to the point of shipment at the port of Weymouth, N.S., about 15 miles, over which Messrs. Stehelin & Sons have constructed their own railway and laid it with timber rails from the adjacent forest.

The boiler has a cylindrical shell and furnace, the smoke box end being set about two feet higher than the front end in order to assist the circulation and draught. The furnace is arranged for burning wood, and two-inch tubes connect the back end of the furnace with the smoke box in the ordinary way. The shell is completely filled with water around the furnace and tubes, steam space being provided in a large dome.



LOGGING LOCOMOTIVE BUILT FOR MR. EMILE STEHELIN, NEW FRANCE, N.S.

The water spaces and base of dome are so arranged as to give a rapid and continuous circulation; the ascending current of water and steam being around the furnace and tubes up to the dome, and the descending current flows from the sides of the dome around the tubes to the bottom of the boiler. This form of boiler has been manufactured for several years by the Robb Engineering Co. for portable purposes, and has proven to be a remarkably quick and economical steamer, its simplicity and freedom from stays rendering it very durable. The driving wheels are made to conform to the wooden rails, having flanges both outside and inside, the tread being slightly conical in order to run freely around curves.

The engines are of the ordinary side crank type, with balanced valves and link motion, both engines being attached to a frame which supports the boiler and rests upon the main driving axles. The engine shaft is fitted with a steel pinion geared four to one, with an intermediate shaft carrying sprocket wheels, which drive from it, by heavy forged steel sprocket chains, to the driving axles. The entire locomotive, except the driving wheels and axles, is carried on springs, which permit the wheels to follow the unevenness of the

track and lessen the jar on the engines and other working parts, flexibility in the driving gear being provided by the sprocket chains.

The principal dimensions are as follows: Boiler shell diameter, 3 ft. 4 in.; length 10 ft. 6 in. Furnace diameter, 2 ft. 10 in.; length, 5 ft. 6 in. Number tubes, 109; diameter, 2 in.; length, 5 ft. Dome diameter, 3 ft.; height, 3 ft. 4 in. Total heating surface, 316 square ft.; working pressure, 125 lbs. per square in.; engine cylinders, diameter 9 in., stroke 10 in.; driving wheels diameter, 3 ft.; total weight, not including water in boiler, 22,000 lbs.

A BANK MANAGER ON LUMBER.

MR. Geo. A. Cox, general manager of the Bank of Commerce, in his annual address delivered in Toronto last month, spoke regarding lumber as follows: "Our lumber industry, after the effects of several years of general depression in trade and of unfriendly legislation on the part of the United States, has entirely recovered its tone, and apparently nothing hangs over the market except the threats of the United States lumber lobbyist to engineer further adverse legislation,

once more, however, to urge the necessity of adequate forestry laws. The Government is, I am aware, taking more advanced views than hitherto, but it seems very desirable, now that we have the sharp experience of provincial taxes resulting from declining crown dues from timber, to create a public sentiment which will demand forestry laws as advanced as those of any other country. In British Columbia, where, because for the moment timber seemed to have little realizable value, vast areas have been burned, the future of lumbering looks more prosperous than at any time in the past, and we may hope that it will take its place as one of the safe and permanent industries of that province."

THE MANUFACTURE OF EXCELSIOR.

EXCELSIOR is a staple article used largely for mattresses, upholstering, furniture, carriages, etc.; also for packing glassware, china, druggists' goods, hardware, toys, confectionery; in fact, its uses for packing are almost unlimited, and it is much preferred to hay or straw, as it is elastic, odorless and free from dust and dirt.

It is a wood shaving manufactured from basswood (which is the best), balm of gilead, white poplar and similar woods having a light colored, straight and tough fibre.

By far the greater quantity of excelsior is cut from $\frac{1}{32}$ inch to $\frac{1}{8}$ inch wide and about $\frac{1}{100}$ inch thick. However, it is manufactured from $\frac{1}{64}$ inch wide by $\frac{1}{400}$ of an inch to $\frac{1}{2}$ inch wide and $\frac{1}{50}$ of an inch thick.

The wood should be cut in 38 inch lengths, and split into slabs 5 or 6 inches thick, the full width of the log, and then seasoned in the open air until dry. Green or damp wood is unsatisfactory; it does not work up good, clogging and otherwise interfering with the work, and molding in the bale when pressed. Wood should be full thickness that the machine will take to get full capacity of knives at each stroke.

To get the best results, open sheds with board roofs should be constructed so that the air will have free circulation, and at the same time keep the wood free from rain or snow.

After seasoning thoroughly, the 38 inch lengths are cut in two in the middle, and the ends trimmed square so as to make 18 inch lengths. The small pieces of bolts left from cutting excelsior are used for baling strips. Open air seasoned wood is preferred to kiln dried wood; the latter is more or less brittle.

An abundant supply of timber which can be handled without too great expense, together with proper shipping facilities, are, of course, the primary considerations. When the mill is located on the banks of a river, the logs may be cut many miles above, and "driven" when the water is high. Hauling by rail is also profitable when the distance is not too great.

There are many establishments throughout the country engaged in manufacturing that have a surplus of fuel for power which could be utilized for this purpose. When close to a supply of suitable timber, it is easily seen what a profit may be derived by adding an excelsior mill. Until recently, it was thought that this was the only way excelsior could be manufactured profitably, but the fact that plants erected exclusively for its manufacture find it necessary to enlarge from time to time to enable them to keep pace with the demand, proves conclusively that such is not the case. In fact, there are few better paying manufacturing businesses than this is when properly handled. — National Coopers' Journal.

in order, if possible, to keep the consumer in the United States at the mercy of the owners of the rapidly-diminishing supply of timber now left in that country. This unfriendly legislation hurt us for some years, but with the improvement in business the demand for low grades of lumber has been such as to clear out our yards to make the immediate outlook quite satisfactory. The demand for lumber of the higher grades continues to be good, and year by year the proportion we are able to export in a more advanced condition of manufacture than that of mere square timber or deals increases.

"The trade in doors, sashes, furniture, etc., is steadily growing, and with the exportation of sawlogs practically at an end, we may hope that out of our remaining forests in Ontario a much larger proportion of wage-earning from the same quantity of lumber will accrue to our people than in the past. As the best of our pine and hardwoods is being cut we are finding use as lumber for many woods hitherto despised, and with the development of our water-power for the making of cheap pulp, to be put doubtless to many uses not now thought of, we may look forward to national revenues and manufacturers' profits from our forests for all time to come. Permit me