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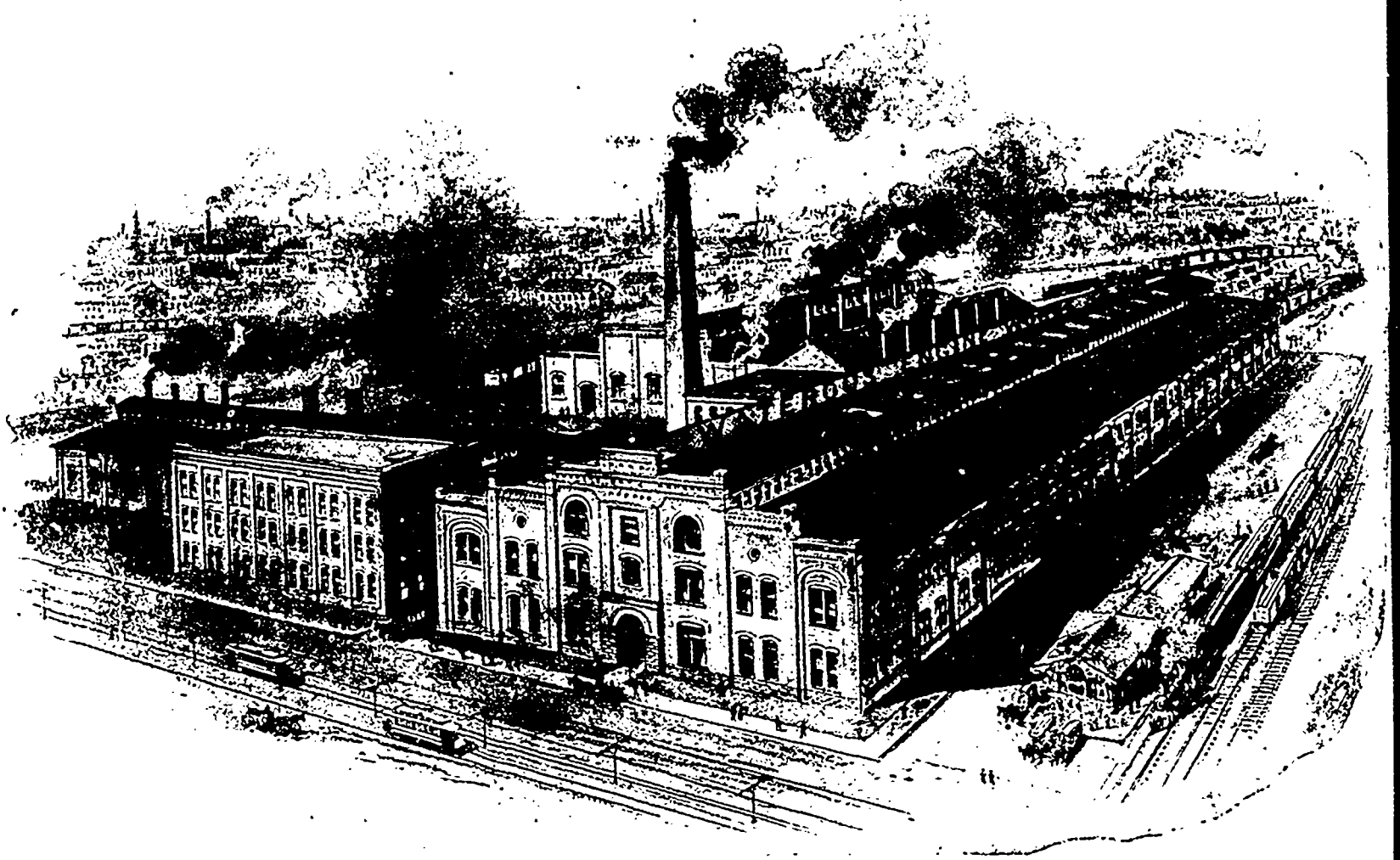
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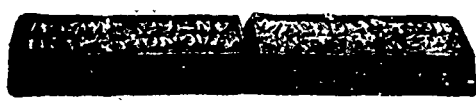
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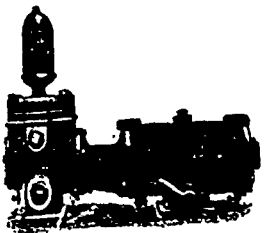
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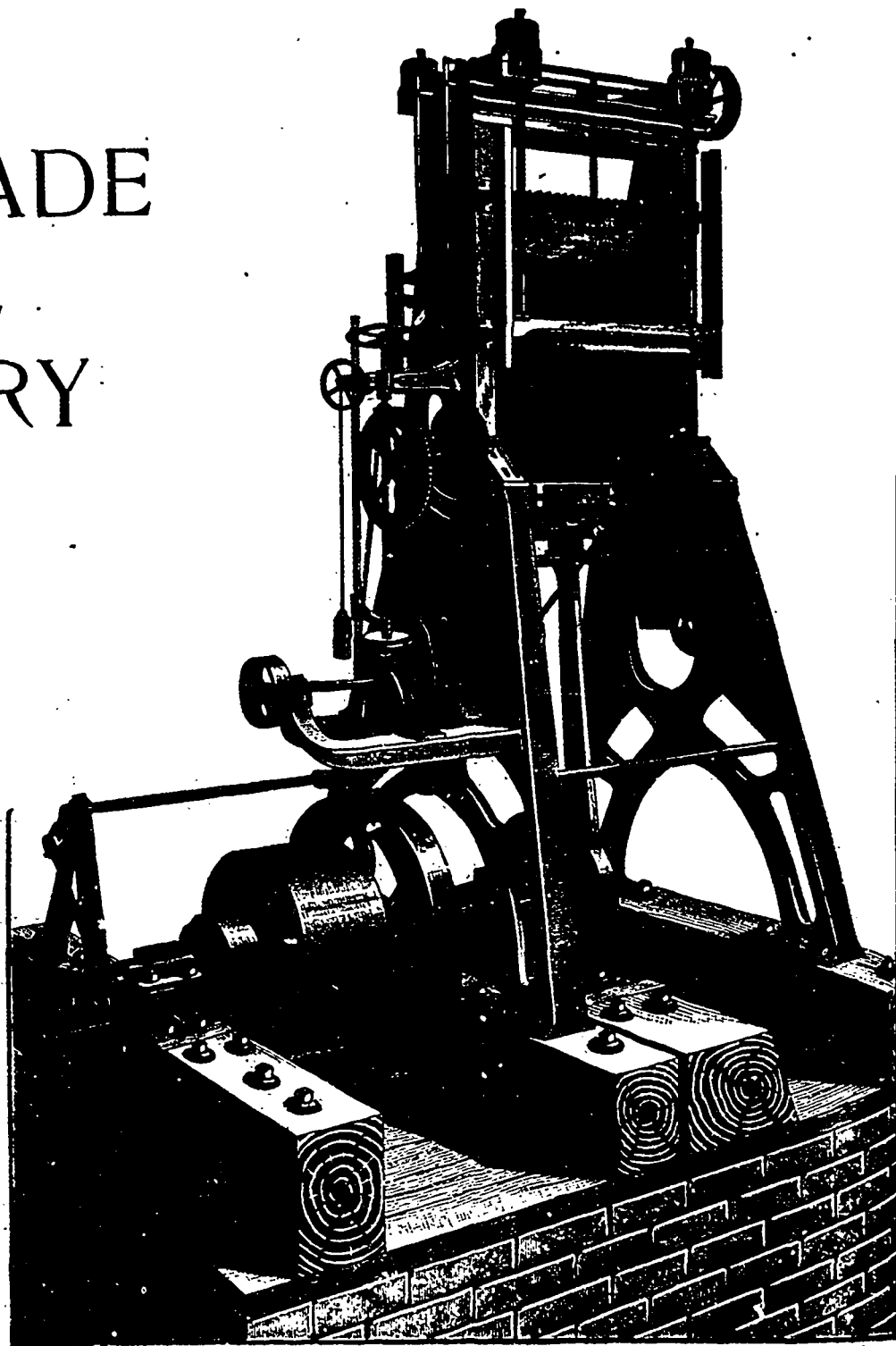
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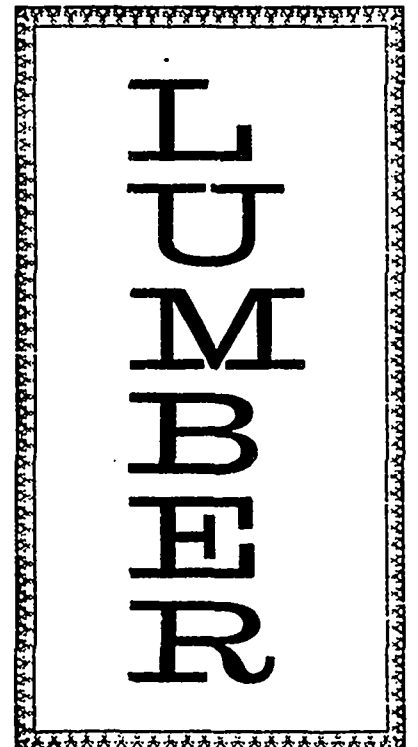
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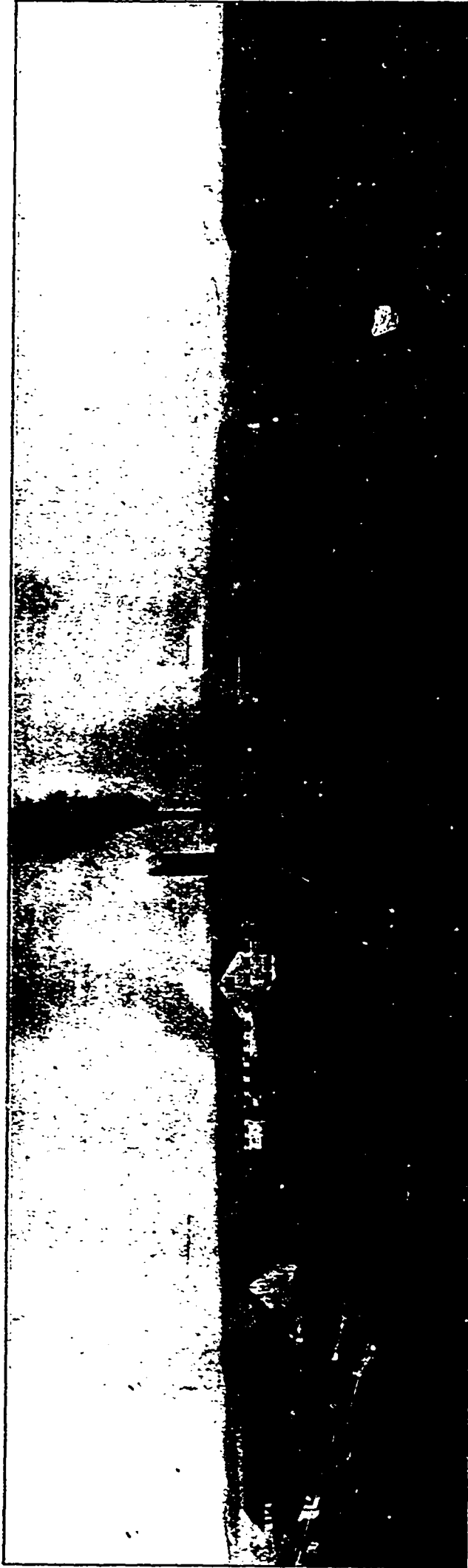
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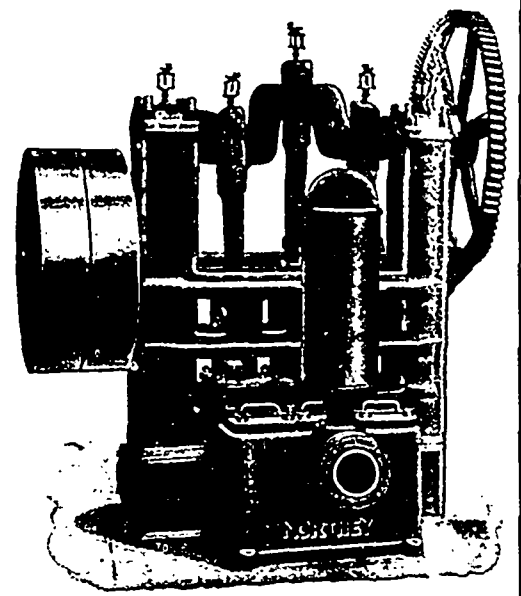
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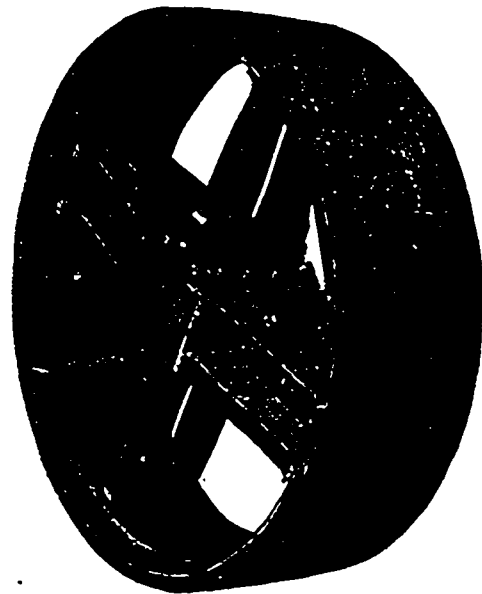
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THE CANADA LUMBERMAN

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Manitoba and the Territories

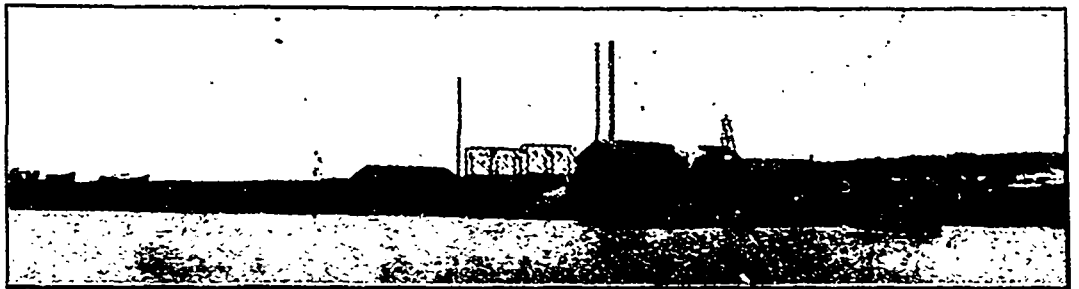
THE LUMBER INDUSTRY.

ALTHOUGH essentially an agricultural country, the province of Manitoba possesses a considerable extent of timber lands. Of a total area of 64,666 square miles, 25,626 square miles are said to consist of wooded land. A portion of this, however, is but sparsely timbered. The Northwest Territories, comprising the districts of Keewatin, Assiniboia, Saskatchewan, Alberta and Athabasca, have an area of 2,371,481 square miles, or somewhat greater in extent than all the other provinces of the Dominion. Of this area 696,952 square miles are designated as forest land. The timber in Manitoba and the Territories is chiefly spruce and white pine, the latter being found in greatest abundance in the Lake of the Woods district.

There are under license in these provinces approximately 2,700 square miles of timber limits, divided in the different agencies as follows: Winnipeg agency, 1,198 square miles; Calgary agency, 1,048 square miles; Prince Albert agency, 342 square miles; Edmonton agency, 117 square miles. In addition, there are over 200 square miles under license in the Yukon territory. Among the large holders are D. E.

competition by tender. A rental of \$5 per square mile is charged for all timber berths, and in addition the following dues are to be paid: Sawn lumber, 50 cents per M. feet; railway ties, 1½ cents each for six feet and 1¾ cents for eight feet in length; shingle bolts, 25 cents per cord; all other products, 5 per cent. on selling price. Permits to cut timber are also granted by public

mills and large areas of standing pine timber in Northwestern Ontario. Other large mills in Ontario supplying the western market are those of Vigars & Co. at Port Arthur, Graham, Horne & Co. at Fort William, and Savanne Lumber Co. at Savanne. The only mill of importance situated in the city of Winnipeg is that of D. E. Sprague. The lumber requirement of Manitoba and the



VIGARS & CO.—MILL AND LUMBER PILES AT PORT ARTHUR, ONT.

competition, except in the case of settlers who require the timber for their own use. The dues payable under permits are \$2.50 per thousand feet for square timber and saw logs of pine, cedar, spruce and tamarac, \$3 for saw logs of oak, elm, ash or maple, and \$2 for poplar saw

Territories is steadily increasing, and as settlers are now rapidly coming in from all parts of the world, it is only a question of a short time until the demand for lumber in these provinces will exceed that of any other province in the Dominion. The superior quality of wheat and other cereals grown upon the land, and the greater yield per acre, are now universally acknowledged. A yield of some 30,000,000 bushels of wheat and as much more of other grains from an area of 1,500,000 acres in itself speaks volumes for the future of Western Canada. There are within the provinces probably between 250 and 300 retail dealers in lumber, about 200 of whom are members of the Western Retail Lumbermen's Association.

Below will be found illustrations and descriptions of some of the saw milling establishments within these provinces.

* * *

VIGARS & COMPANY.

This firm was established in 1876, and own the only saw, sash and planing mills in operation on the shores of Thunder Bay. The capacity of the mill is 90,000 feet per day, and attached thereto are the requisite sash and planing mills.

The firm are the owners and lessees of large and valuable timber limits, and have special facilities for carrying on the lumber business, as they are able to bring in logs either by water or rail, with every opportunity of booming the same. They also have large and extensive piling grounds adjoining the mill, with the tracks of the Canadian Pacific, Port Arthur, Duluth and Western, and Ontario and Rainy River railways entering their yards. They are thus enabled to ship lum-



VIGARS & CO.—SAW MILL AT PORT ARTHUR, ONT.

Sprague, of Winnipeg; Hanbury Manufacturing Co., of Brandon; Peter McArthur, of Fairford River; H. T. Mitchell, of Selkirk; Mackenzie Mann, of Shoal River, and Peter McLaren, the latter controlling limits on Old Man river. The principal limits are on tributaries adjacent to the Assiniboine and Red rivers. Licenses to cut timber are acquired at public

logs; railway ties 8 feet long, 3 cents each; telegraph poles 22 feet long, 5 cents each; shingles 20 cents per thousand.

A large percentage of the lumber used in Manitoba and the Territories is obtained from the Lake of the Woods district, being supplied by the Rat Portage Lumber Co. and the Keewatin Lumber Co., both of which own extensive

ber east or west with the greatest dispatch. Also adjoining the mills are the docks of the Port Arthur, Duluth and Western and Ontario and Rainy River railways and the Dominion Coal Co.

The firm make it a point to keep ahead with the most improved machinery in all branches of the business, its motto being "up to date." They are also large dealers in sashes and doors.



D. E. SPRAGUE.

Mr. D. E. Sprague went to Winnipeg with W. J. Macauley in 1872 from Waubaushene, Ontario, where he had been for some time connected with the Georgian Bay Lumber Co. In



MR. D. E. SPRAGUE.

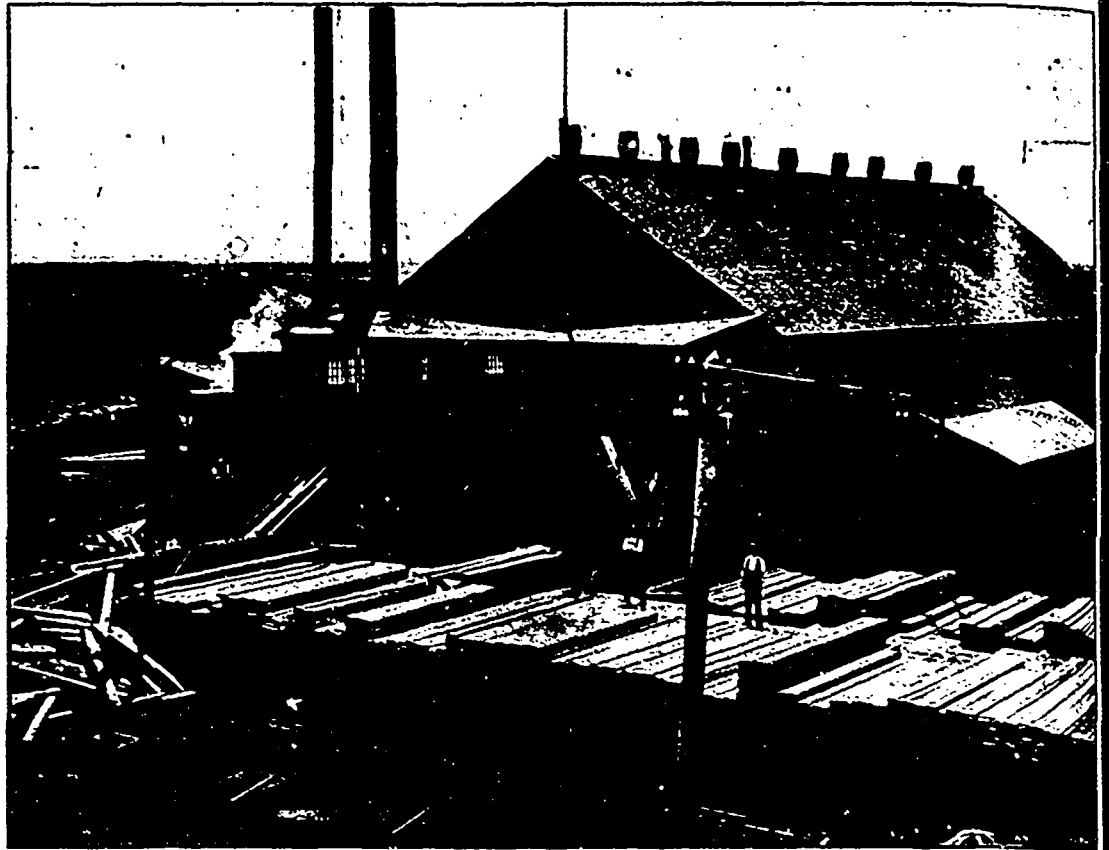
feet. Over 100 men are employed the year round in manufacturing the lumber and cutting logs on the timber limits.

A well equipped planing mill, containing two matchers, two surfacers, one moulding machine, three self-feed rip saws, two swing cut of saws, one resaw, and one large circular re-saw, together with the necessary blowers,

seasoned material for finishing purposes, which otherwise it would be almost impossible to do.

The most perfect system prevails in every department, and visitors will find much to admire in the bright and spacious office, the well kept stable and the 40 odd horses, in whose fine appearance Mr. Sprague takes a personal pride.

A good understanding of the magnitude of the



D. E. SPRAGUE—SAW MILL AT WINNIPEG.

1882 he established his present lumber business on Higgins ave., Point Douglas, and since that time it has been steadily growing until it has assumed its present proportions.

The mill consists of a single circular saw, edger, trimmers, slab-table, lath and shingle mills, and all other accessories of a first class plant. It has a capacity of 50,000 feet in ten hours, and the cut for the present season, running night and day, will be about 11,000,000

shaving vault, etc., is operated in connection with the saw mill. Mr. Sprague has also recently added to his establishment one of the latest and most approved dry kilns, with a capacity of 48,000 feet. This is the only up-to-date dry kiln between Port Arthur and the coast, and has proved a great advantage to the city, enabling builders to procure thoroughly

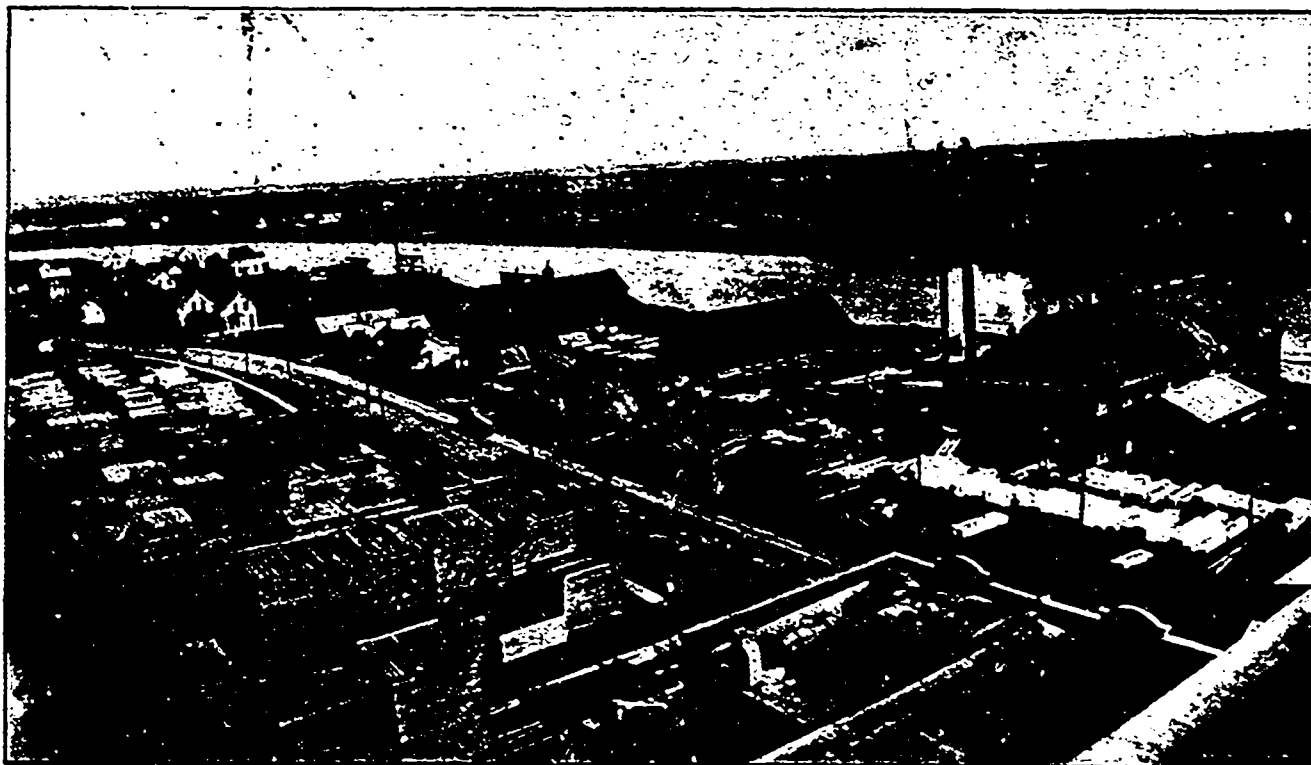
establishment may be obtained from the accompanying illustrations.



HUGHES & LONG.

The above firm are also located at Brandon, Man. About three years ago they purchased the saw mill and plant of J. H. Hughes & Co., and claim to be about the only firm in the west that handles lumber from the stump to the customer, every branch of their manufacturing being within themselves. They own considerable standing pine on the Big Fork river in Minnesota, which they run down the river to their mill on Rainy river, where their logs are sorted from those of other companies. They have their own steam tug and barges, and ship their lumber to Rat Portage, where it is loaded on cars and distributed to their many customers throughout Manitoba and the Territories. They have yards at Brandon, Man., and Beaver Mills, Ont., and through the yard at the former place handle large quantities of American lumber.

Mr. Long is a man of considerable experience and



D. E. SPRAGUE—GENERAL VIEW OF MILLS AND YARDS.

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means, having for some time been engaged in the lumber business in Minnesota. Their cut this year was in the neighborhood of five million feet.



THE HANBURY MANUFACTURING COMPANY.

Mr. J. Hanbury, whose portrait appears on this page, is the head of the firm known as The Hanbury Manufacturing Company, and unquestionably stands in the front rank of Brandon's enterprising and successful business men. Although perhaps he has done no more for himself or for those about him, than others have done or could have done under similar circumstances, yet he at no time has been slow to turn his opportunities to the best possible advantage. The secret of his success cannot be attributed to luck or superabundance of golden opportunities, he having perhaps encountered but his fair share of these, but rather to his capacity of recognizing such opportunities; to his fearlessness in attempting promising enterprises and in pushing them to their fullest extent; to his keen business management and excellent executive ability; and lastly, though by no means least important, his business sympathy or capacity to appreciate that others

pairs and improvements, he operated in connection with his contracting. He thus found himself in a better position for business than ever before, and during the following interval up to 1894 he erected many of the town's finest buildings, including the large post office, general hospital and Merchants' bank.

Through all these years he never shrank from heated activity, but proved himself an accurate calculator, an efficient and inspiring manager, and an ardent worker. Seldom was he avoidably absent from the scene of active operations, but at all times was ready to lend an active hand himself, whenever occasion required it. During this last mentioned year, when the retailing of lumber became a leading factor with him the contracting business was allowed to lapse considerably, although not altogether, owing mainly to the impossibility of personal supervision. But even in this present year he erected five of the finest residences in the town.

With more concentrated attention to the development of his lumber business, the hoped for result was attained, for not only did the Hanbury yards become the leading retail market, but they at the same time rapidly grew to be the source of extensive wholesale shipments to an ever increasing area, until now Mr. Hanbury

Brandon, and of that exception, namely coal, he is the heaviest local dealer. The handling of this fits in well during the winter months, when the lumber trade is necessarily more or less slack, and helps to keep the teams occupied, thus never allowing the activity about the premises to materially diminish. The Canadian Anthracite coal mined in Alberta is mainly handled, and of this the large sheds have been full since the middle of August, ready for the coming of the cold weather.

As has been mentioned, American pine has



MR. J. HANBURY.



D. E. SPRAGUE—INTERIOR VIEW OF OFFICE.

all along been the staple commodity of the firm, but with the opening up of this season Mr. Hanbury, with his wonted ability to see and grasp a good thing, succeeded in taking over the entire business of the Assiniboine Lumber Co., of Brandon, including yards, containing three million feet of manufactured spruce and tamarac, lumber sheds, saw mill, winter's cut of logs, seventy-five thousand feet in lumber, timber limits, with all utensils and appliances for operating same, and a large branch yard and hardware store in the town of Hamiota. This last mentioned makes the second of his branch establishments, the other being in Virden, and having been purchased some time since. This extension, added to his already well developed trade, at once placed Mr. Hanbury in the rank of Canada's prominent lumbermen. While it naturally means that the American article from now on will be a side line, yet, from the following rough summary, it can easily be seen that there is abundance of scope for enterprise and expansion in connection with the home grown material.

The saw mill has a capacity of from thirty to forty thousand feet of lumber per day of ten hours, and this year never was idle day or night from the beginning of operations in June until the 25th of August, when the last log was converted into lumber. The conducting of this—the planing mill, yard, warehouse and teaming—involves the employment of over one hundred and fifty men, with an aggregate monthly wage of from \$4,500 to \$5,000. The shipping capacity, outside of local freight, in the way of sash, doors, etc., during the present summer has been from six to ten cars per day, having for their destination points east as far as Portage la Prairie, west to Medicine Hat and south to the border, cover-

are at the same time struggling alongside of himself for a place.

Removing, in 1882, from Ontario to Brandon, when it was but a village on the prairie, for the most part unbroken, he started in an unpretentious way as a contractor and builder, which business he followed exclusively until 1889. During seven years he succeeded in not only accumulating a reasonable share of wealth, but also, and what is better, established for himself a reputation for honesty and reliability, which formed the first round in that ladder of success which he is still rapidly climbing.

During the summer of 1889 Mr. Hanbury purchased a planing mill which had been abandoned as unprofitable, and which, after extensive re-

might be called the "lumber king of Manitoba."

Until the spring of the present year the rough pine product, imported from Minnesota, was handled almost to the exclusion of other varieties, though the British Columbia cedar and fir composed a large share of the finishing material, as indeed they continue to do. Other material in the line of lime, paper, brick, etc., have all along been extensively carried, and for the first time this year a full line of builders' hardware was put in stock. With this last addition it is possible to obtain from this firm anything and everything which ordinarily may be said to be requisite for the construction of a building.

Building material, with one exception, is all that claims his attention at his headquarters at



THE HANBURY MANUFACTURING COMPANY, BRANDON, MAN.—GENERAL VIEW OF MILLS.

ing, roughly speaking, the whole of eastern Assiniboia and western and middle Manitoba. The limits, covering an approximate area of two hundred square miles of nearly solid timber, and about the only extensive ones in Manitoba, are situated some two hundred miles north-west of Brandon—that is, across country, or, to follow the winding course of the Assiniboine river, which floats the logs down, over seven hundred miles.

This is merely a rough estimate of the present situation, and is important mainly as being indicative of what this industry is now, and what it is likely to become, for Brandon. Just to take a look into the immediate future, it might be mentioned that since increased trade has outgrown the capacity of the present planing mill—which itself gives employment to a gang of between thirty and forty men the year round—the foundation has been prepared for the erection of a large factory to adjoin and be connected by a truck system with the already completed three-storey warehouse, which measures 50 x 100 feet, and which contains the spacious offices. This, along with other contemplated improvements in connection with the sneds and saw mill, will make this the largest and most complete plant for the

manufacture and handling of lumber in the west. To the further establishment of this claim for certain expansion, it might be mentioned that all arrangements have been completed for the sending of three hundred men to the bush this coming winter, who will be expected to get out logs for from eight to ten million feet of lumber.

In view of this enormous increase in his business, it is not to be expected that Mr. Hanbury could continue personally in more than the general management of it, leaving the detail and practical management to competent assistants. His faculty of seeking out good men and of retaining them has no doubt been no small contributing element to his success. On account of this and other influences, he has of late taken a more active interest in public and civic affairs; although at no time since his arrival in the west can it be said that he has been unconcerned regarding such matters. At the present time he is a city alderman and chairman of the finance committee. In fact, he is ever ready and willing to do whatever he can for the furthering of the city's interests, and from any point of view Brandon finds in him one of her most able and deserving sons—men like whom may she be ever acquiring an increasing number.

THE RAT PORTAGE LUMBER COMPANY.

Rat Portage, Ontario, is the headquarters of one of the largest lumbering concerns in the Dominion of Canada, known as the Rat Portage Lumber Company, Limited. For some time previous to the year 1892 there were in existence at Rat Portage and Norman five lumber companies, viz., The Western Lumber Company, The Minnesota and Ontario Lumber Company,

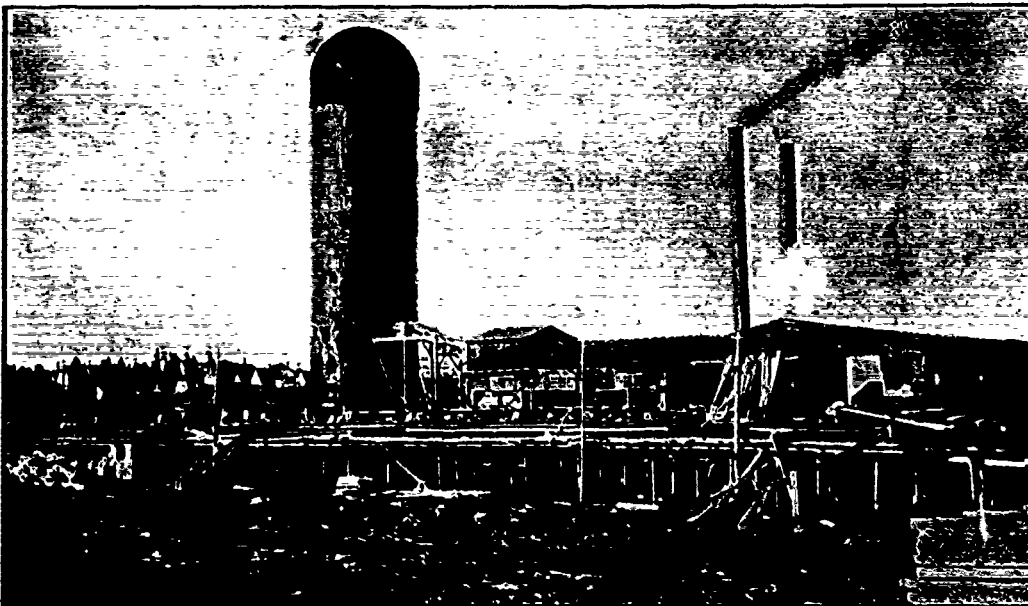


MR. D. C. CAMERON, President.

The Safety Bay Lumber Company, Cameron & Kennedy, and Ross, Hall & Brown. In that year these companies decided to amalgamate, under the name of the Ontario & Western Lumber Company, Limited. The name of this firm was, a few years later, changed to the Rat Portage Lumber Company, under which style the business is now conducted.

The Rat Portage Lumber Company thus operate five mills, with a combined capacity of 100,000,000 feet annually. Since obtaining control of these mills, the company have been steadily increasing and improving the plant, until today it stands second to none in the Dominion.

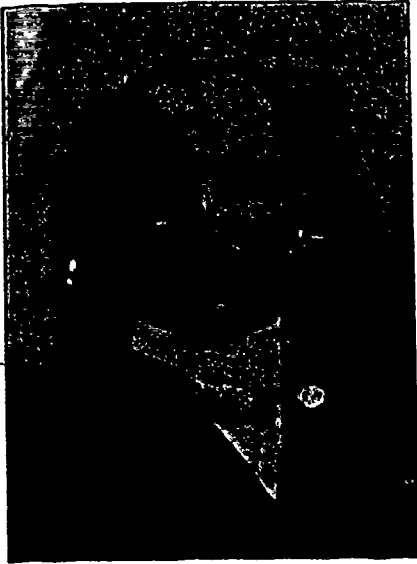
In connection with the mills there are large planing mills and a sash, door and box factory, the output of which is very large. Last year improved machinery was installed, including an electric lighting system and electric tramways for delivering the lumber from the saws



RAT PORTAGE LUMBER COMPANY—MILL No. 1.

through the yards, a great improvement over the horse-and-cart service previously employed.

Almost the entire output of the Rat Portage Lumber Company's mills is marketed in Western Canada, and each year has shown a steady increase in the business of the company. They have branches at Winnipeg and Brandon, Man., where a complete stock of lumber, sash and doors and other building materials is always carried in stock. Besides manufacturing lumber,



MR. WM. ROBERTSON, Secretary.

shingles, lath and sash and doors, the company deal extensively in railway ties, telegraph poles, cedar posts and piling. They own extensive limits in the Rainy River district and also purchase logs from jobbers in Northern Minnesota, which are towed through the Lake of the Woods to their mills.

The company employ some 700 men during the summer season, while in winter the number reaches nearly 1000, the most of whom are in the lumber woods getting out logs for the ensuing



MR. J. E. YOUNG, CASHIER.

season. The pay roll of this concern averages about \$25,000 per month, a fact which demonstrates the great benefit of the business to the town of Rat Portage. D. C. Cameron is president and general manager of the company, Wm. Robertson secretary, and J. E. Young cashier, portraits of whom are presented. Views of No. 1 and No. 4 mills are also shown herewith.



RAT PORTAGE LUMBER COMPANY—PLANING MILL AND SASH AND DOOR FACTORY.

PERSONAL.

Mr. F. X. Blanchere, a Government timber inspector in the Yukon, has resigned, and has been succeeded by Mr. Chas. Sylvester, of Athabasca County.

Mr. A. McDonald, for seven years book-keeper and accountant for the Georgian Bay Lumber Co. at Waubashene, Ont., has accepted a similar position with Williams Bros., of Glen Huron.

Mr. William Bowden, of the Hull Lumber Co., gave

in Toronto attending the Industrial Exhibition. Mr. Sinclair cuts hardwoods exclusively, including broom handle stock.

Mr. E. Stewart, who has recently been appointed chief inspector of timber and forestry for the Dominion, has just made an official trip through Manitoba and British Columbia, with a view to acquainting himself with the condition of the forests of Western Canada.

Mr. A. B. Gordon, of Pembroke, for many years with



RAT PORTAGE LUMBER COMPANY—YARD AT MILL NO. 1.

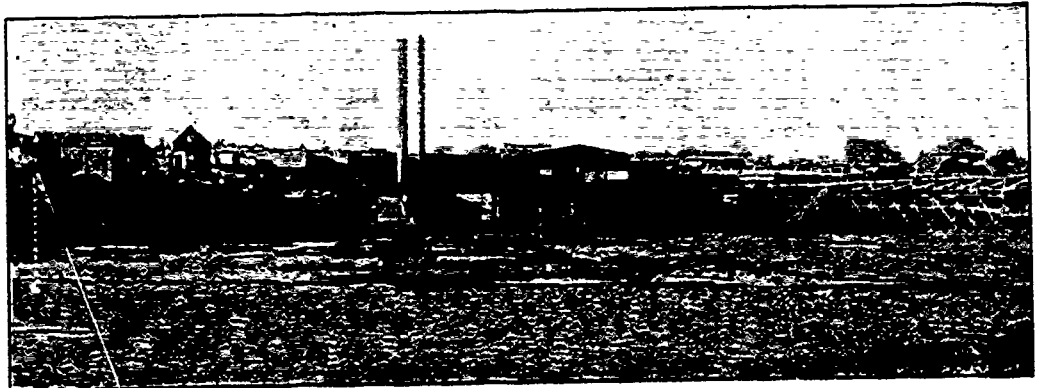
THE LUMBERMAN a call on his return from the meeting of the Knights Templar at Windsor, at which he had the honour of being elected High Constable.

Messrs. F. N. Waldie and R. T. Waldie, sons of Mr. John Waldie, of the Victoria Harbor Lumber Co., Toronto, sailed for England last month on the White Star steamer "Teutonic." It is their intention to spend the winter in Egypt.

Mr. J. D. Sinclair, who operates a saw mill at McIntyre, Grey County, gave the CANADA LUMBERMAN a call while

the lumber firm of Hale & Booth, has replaced his father in the firm of Booth & Gordon, and has removed to Rayside, where he will reside in future and have charge of the saw mill there.

The Review of Reviews for October accords to "Dewey Day" its appropriate recognition, publishing an illustrated description of the artistic decoration in New York from the pen of Ernest Knauff, the well-known writer on art subjects.



RAT PORTAGE LUMBER COMPANY—MILL NO. 4.

Mr. W. R. Thompson, sawmill owner of Teeswater, Ont., has lately returned from a business trip to Great Britain.

THE WESTERN RETAIL LUMBERMEN'S ASSOCIATION.

PARTICULARS OF THE ORGANIZATION—OPINIONS OF MEMBERS AS TO ITS USEFULNESS—PORTRAITS OF OFFICERS.

On the opposite page are presented portraits of most of the present officers of the Western Retail Lumbermen's Association, an association that is unique inasmuch as it is the only organization of retail lumbermen in Canada. Notwithstanding the many difficulties encountered in the working of such an organization, the history of this association, formed about ten years ago, has been one of continued success. It has exercised a beneficial influence upon the lumber trade of Manitoba and the Territories, and has resulted in much good by protecting the trade and affording an opportunity to members to become acquainted with each other.

The affairs of the Association are managed by a board of directors, which consists of six members of the Association, in addition to the president, vice president and secretary. The objects of the Association include the prevention of more than a reasonable number of yards at a single point, and as far as possible the prevention of price cutting. By following legitimate business methods, the standing of every man in the trade has been strengthened, with the result that scarcely a failure has occurred among active members of the Association. In turn, this has proven beneficial to the wholesale dealers, who are honorary members of the Association. It is contended that in no instance has the price of lumber been advanced as a result of the Association, but on the contrary, from the safe character of their business, wholesalers have been enabled to reduce their prices.

The membership of the Association has steadily increased, the number of new members taken in during the past year being greater than in any previous year, until now the membership includes nearly all the dealers and manufacturers in the territory covered. A permanent secretary has been appointed in the person of Mr. J. Cockburn, of Winnipeg, who is familiar with every detail of the Association. An understanding of the principles on which the Association is conducted may be obtained from the following clauses taken from the by-laws:

"Price lists shall be fixed and established subject to the revision and approval of the Secretary-Treasurer or Directors, whose decision shall be binding, for each point or group of points where retail yards are operated, and each active member shall sign the list fixed for the point where he is operating a yard, and such signature shall bind such member to carry out and adhere to such price list, subject to the penalties provided by the By-laws. Not less than twenty per cent. shall be added to the wholesale cost as a retail price on all lumber, timber, and other material ordinarily sold in a retail lumber yard, but not listed on the price list. In the cases of points intermediate where no price list has been established, the price to govern shall be the same as that of the adjacent point having the lowest price list.

An active member may ship in car load lots or less quantity, lumber, timber or other material to points outside the territory for which such member has signed a price list; but no such lumber, timber or other material shall be sold at less than the price fixed by the price list arranged for the territory into which such shipment is made. In no case shall such lumber, timber or other material be sent on consignment for sale, or to be stored for sale.

Except as provided in the next section, no member of the association may be a contractor for doing work, or

become the security for the due completion of work contracted for, and no lump sum shall be submitted or offered to a contractor or consumer for the supply or furnishing of lumber, timber or other material. In all cases detailed prices must be given as provided in the price list and strictly adhered to, and the provision as to adding twenty per cent. to wholesale cost carried out. The secretary-treasurer, executive committee, or board of directors may instead of expelling or suspending a member for violation of this clause fine the offending member in a sum not exceeding ten per cent. of the money value of the contract. In case such fine is not paid in two weeks after personal notification, such offender shall be expelled.

The executive committee or board of directors at such points where there is only one active member established, may allow such member to enter into contracts, provided that no interference with the business relations of other members is likely to arise therefrom.

Honorary members shall not sell lumber, timber or other material usually sold in retail lumber yards to any firm or corporation other than to an active member of this association, except as hereinafter provided.

Honorary members may, however, sell lumber, timber or other material to contractors or consumers for building elevators, flouring mills, or to railway companies for their own use, and the corporation of the city of Winnipeg, and to contractors for Winnipeg civic purposes, and only when the quantity required amounts to one hundred thousand feet or upwards, and they may sell building paper to merchants.

Honorary members operating mills in a city, town or village, may sell to contractors or consumers at the locality where the mill is situated at the retail prices fixed for such locality, but such honorary members shall be liable to the restrictions and penalties provided by the by-laws and affecting active members in regard to such sales.

No member shall purchase from or sell to any member who has been expelled from the association any lumber, timber or other material usually sold in retail lumber yards. No member shall so purchase from or sell to any member while such member is under suspension.

Active members shall make their purchases of lumber, timber and other material from honorary members only."

The CANADA LUMBERMAN solicited the opinions of some of the members of the Association as to the benefits derived from membership in the organization. The replies received are given below:

FROM ACTIVE MEMBERS.

T. D. ROBINSON, Winnipeg, Man.: "From a retail standpoint in this city the association cuts no figure, for we are all doing our business in our own way without regard to it, and from a wholesale standpoint the rules are only observed when it suits them best. An association in any line of business would be a good thing if made by fair men on fair lines, and lived up to, but my experience with them leads me to the conclusion that as they are now constituted the meanest men have the greatest advantage, and consequently are not desirable."

T. H. PATRICK, Souris, Man.: "I think an association is a good thing for both wholesale and retail dealers, if lived up to. If there are crooked members it gives them a splendid chance for their crooked work. The trouble is, you cannot make a crooked fellow straight with an association. On the whole, in my opinion, the association is an advantage."

JOSEPH RINN, Elm Creek, Man.: "I am very favourable to an association of this kind. I think it justifies the retailer to keep in hand a better assortment of stock for his customers than when the trade is cut up. In some cases I find the rules not strictly adhered to, either by honorary or retail members. It would add greatly to the welfare of the association if the members would hold more closely to the rules governing the association."

W. A. SMITH, Carnduff, N.W.T.: "We find the association a great benefit to us in the small towns in this country, as it shuts out unfair competition and will not let more than one dealer locate in points where the business will not warrant two or more dealers. If the honorary members and the active members keep faith with one another it will work in Ontario. The only drawback is that the honorary members are a little too anxious to do business, and in some cases sell to others in order to do business."

CRAWFORD & CO., Pipestone, Man.: "Our association has worked well. The principal benefit in this country is that it regulates the number of yards in the different towns, and thereby does away with ruinous competition, while at the same time it enables the dealer to keep a much better stock and supply his customers far better than he otherwise could do, and at a fair price. It also enables him to pay 100 cents on the dollar always. We certainly think the advantages are quite sufficient to induce the retailers to hold together and keep the organization alive."

R. J. NOBLE, Oxbow, N. W. T.: I have belonged to the association ever since it was organized, and as for any special benefit, I do not know of one bit of good it is at all. I do believe it is of benefit to wholesalers, but not the least to retailers, other than this, I understand that by being organized the number of dealers that can open up in a place is controlled. Other than this I do not know of any benefits. I have never received any benefits from it that I know of. I look at it in this way, if men are not honest, being organized will not make them so, and if they are honest then there is no necessity of being organized."

MACCAUL & HARVEY, Qu'Appelle Station, N. W. T.: "We do not think the average price to the consumer is increased in 5 per cent. of the towns covered, and the mill men sell as much lumber as they would under the old plan, but with this exception, now their accounts are all good, whereas when a small business was divided up between two or three men, some one or two of the accounts in each place was very apt to be bad. Another feature in favor of it is that the stocks carried are better as regards assortment. This, of course, applies to small points only, where, if the trade was divided, neither yard could afford to carry a full stock. We do not think the retailers, that is, the great majority of them, get more than a fair living profit."

J. L. CAMPBELL, Melita, Man.: I believe an association such as we have in the Western Retail Lumbermen's Association is of enormous benefit to the trade, in that it holds the business steady and uniform, preventing the ruinous system of cutting and preventing the establishment of more yards at a point than the trade of the community demands. The advantage accrues to the retailer, not by advancing the margin of profit, but by securing to him more trade at a fair profit. The retailers bind themselves to buy only from honorary members, so far as the latter can supply them, and the wholesalers refuse to sell to the consumers. From the improved condition of the retailer, he is better enabled to pay his obligations to the wholesaler, who by reason of this improved condition of his customers, has his losses reduced to a minimum, which enables him to reduce the margin of profit, resulting in cheaper lumber to the consumer. So that you see the benefits accrue to the retailer, the wholesaler and the consumer without injustice to anyone. The association here is very powerful. It is practically impossible for a retailer to carry on business outside of it; nor can a wholesaler conduct a satisfactory business unless identified with it. Several attempts have been made to break it both by the American lumber dealers and others, but without avail. The association here is unique in this respect—practically every man within the territory belongs to it. It is said to be the strongest association of its kind in America."

F. CHAPIN, Hartney, Man.: "Our Western Retail Lumbermen's Association is beneficial in quite a few ways; it is fairly a success, but could be improved. The manner of fixing prices for retailers (I think) should be made by the secretary, according to the difference in freight rates, instead of being left to those who form themselves into a compact, or join together and hold a meeting to fix prices, for the reason that some retailers wish to work for glory and want prices too low. Furthermore, prices must be set with some regard to dealers in towns adjoining. The secretary understands all these interests and is in a position to set the prices; the wholesalers set their prices and stay with them. The trouble all comes from the retailers, who do not always keep to prices set; and some refuse to set prices because they think their opponent would not hold to them after they were set. Therefore, the secretary should set prices, and if retailers fell in line, so much the better; but if they would not, then exclude them. The penalty should be inflicted more rigorously than it has been in the past. The association prevents too many going into the busi-



MR. G. N. MILLER, Virden.



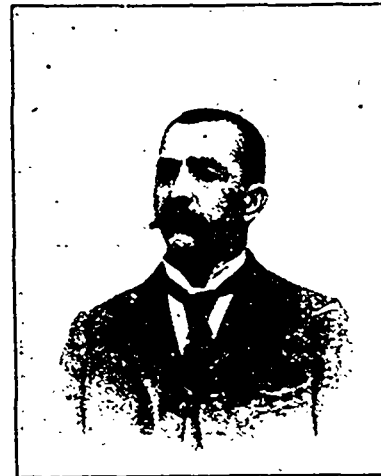
MR. D. E. SPRAGGE, Winnipeg.



MR. A. J. HUGHES, Souris.



MR. H. BYRNES, Winnipeg, President.



MR. R. H. O'HARA, Brandon,
Vice-President.



MR. ISAAC COCKBURN, Winnipeg,
Secretary-Treasurer.



MR. A. M. STEWART, Morden.



MR. T. A. CUDDY.

OFFICERS OF THE WESTERN RETAIL LUMBERMEN'S ASSOCIATION.

ness in one place, which has been quite a help and protection to those in the business."

THOMAS LEESE, Birtle, Man.: "The retail lumber associations are of benefit to the members when run with the chief object of their origin in view, viz., the regulation of price and competition. The protection given to the members of such an association should be such that all lumberman should wish to belong to same, not exactly by reason of compulsion, but from seeing the benefits accruing to members, on strictly business lines, such as the prevention of failures by regulating the number of yards and prices at any particular point; also, the members of such associations should have something to say to the wholesale honorary members as to the price their lumber should be sold for, if intended for the protection of both wholesaler and retailer, as I understand such an association to be. The regulation of both wholesale and retail prices should be part of its business. I do not mean by this that any control should be taken from either party which both should by right exercise, but the retailer must be shown that he is not merely the tool of the wholesaler, but that the interests of both are identical and feel that the association is a "beast" as it were for the benefit of all its members, in order that everything may work amicably and attain the end for which, I take it, such an association is intended."

J. J. MOON, Russell, Man.: "I have been a member of the Western Retail Lumberman's Association since its inception some six or seven years ago, and consider and always have considered, that it and kindred associations are greatly to be commended. At the cost of a small annual subscription, we have an organization that in regulating the number of operating yards, protects its members from over-competition, and the disastrous tactics that that implies, bringing loss and often ruin to the contending dealers, loss also to the wholesaler, and a consequent shaking of confidence, which tends to injure the trade generally. While not dictating prices, our association regulates prices, in that it prohibits members from selling below a fair, remunerative margin, and it binds the wholesalers to sell only to members of the association, thereby preventing the selling direct to contractors and consumers. But for this latter provision, farmers could club together and get their lumber by the car from the mills. Contractors could get their supplies direct, and the dealer be left to carry on a sort of public accommodation yard to supply the aforesaid parties with what they may have possibly forgotten to order in their cars, and fill other magnificent orders. Our association works harmoniously amongst its members and with the wholesalers, is, I believe, gaining in strength, as it grows in years, and has every prospect of a long and useful life."

H. J. BADHAM, Stockton, Man.: "I am very pleased to write you a few lines regarding my views as to Lumbermen's Association, and I will speak more particularly about the 'Western Retail.' When this association first started I was opposed to it, and it was only when a better head than myself applied for my point, and was actually in possession, that I began to consider the matter. At the present time I consider the association very beneficial for the following reasons: It protects the retail dealer from competition from the parties from whom he buys, the manufacturer and wholesaler. Before the association was formed, a wealthy man could do just about as well with the manufacturer as the local dealer and that I consider unfair competition, for if the rich man can buy his stuff direct, it leaves the local dealer doing business with only the poorer though most probably equally honest men of his locality. It therefore comes to this that the big end of the trade being cut off a much smaller business remains. Every business man knows that given a good volume of business, it can be done much more cheaply than when you have a very small turnover. Another good point about any association is this, that it gives the members of it a chance at certain periods of the year, to meet and exchange opinions and get to know one another, and my own experience has been that many very pleasant friendships are formed in this way. In conclusion I may say that I consider any association fairly conducted a real good thing both from a business and social point of view."

FROM HONORARY MEMBERS.

E. H. HEMP & CO., Vancouver, B. C.: "As to the benefits derived from membership in the Western Retail Lumbermen's Association, we would say that we are

honorary members of the association. No doubt from a retailers' point of view the association is a useful one; but from our point of view as wholesalers its usefulness could be largely extended, if the rules were altered so as to make one of the conditions of membership a guarantee as to the stability and commercial standing of its members. Were such a rule established and faithfully enforced by the officials, then the association would be of considerable value to us at this end of the Dominion."

PACIFIC COAST LUMBER CO., New Westminster, B. C., "Affecting us as wholesalers, the benefit derived from membership in the Western Retail Lumbermen's Association is principally that the existence of the association tends to give strength to our accounts, inasmuch as it prevents undue competition in the retail field and makes it possible that fair profits may be realized by the retailer on his sales. Further, as a list of the members is furnished us from time to time, we are enabled to keep ourselves informed as to who are legitimate retail lumber dealers and by being so informed we can avoid doing business with consumers who may possibly be customers of our regular patrons. Wholesalers are expected to sell only to members of the association and retailers are expected to buy only from honorary members. We claim to have adhered rigidly to this rule; we are aware, however, that many of the retailers buy considerable of their stock from parties outside of the association and if this is persisted in there is danger that the wholesalers will be forced to sell where and to whom they can. As to the working of the association at the other end, we cannot say much from our own experience, but as onlookers we are convinced that it has served a useful purpose for many years, and if its members but chose to regard its rules there is no reason we know of why its usefulness cannot indefinitely continue."

HOW IT IS DONE.

This is another version of the problem, in that it tells "how it is done," properly and within the bounds of good business principles. It tells of a series of transactions in lumber peculiar to the present era of trade expansion: An eastern buyer went over into Canada and succeeded in contracting for the product of 6,000,000 feet of logs. On his return he stopped over in Buffalo and a dealer there offered him \$6,000 for his contract, and the trade was promptly consummated. The seller subsequently purchased one and one-half million feet of this same lumber from his Buffalo friend at a price which gave the latter a profit of \$1 per thousand, and immediately turned it over to a buyer in another market, securing, in turn, for his own exchequer a profit of \$1.50 per thousand. And, to cap the climax, a well-known Buffalonian, who had not figured in any of these transactions—much to his sorrow—makes the solemn announcement that he would gladly have paid \$12,000 for a transfer of the original contract with the Canadian mill. A large portion of the profits represented above was made before a saw had entered the logs.—Lumberman's Review.

TRADE NOTES.

Messrs. Wm. Kennedy & Son, of Owen Sound, Ont., have built a large extension to their factory, to be used for the manufacture of steel castings.

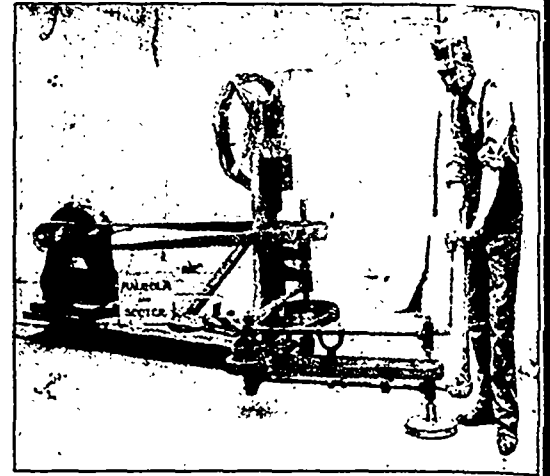
The attention of our readers, the majority of whom are doubtless interested in the subject of improved methods of drying lumber, is directed to the announcement of Messrs. G. W. Reed & Co., of Montreal, appearing in this number, referring to their modern appliances for this purpose.

The well known saw manufacturing firm of Shurly & Dietrich, Galt, Ont., have just purchased the Beaver Saw Works at Sherbrooke, Que. It is the intention of the firm to carry on business there to supply the demand in eastern Canada, and it is understood that the manufacture of axes will also be undertaken. Shurly & Dietrich have just removed their iron bedstead factory from St. Catharines to Galt, where a large new stone building will be occupied.

From Messrs. Boynton & Company, of Chicago, Ill., we have received a copy of a catalogue just issued of their well known embossed and turned mouldings, spindles, wood grilles and automatic turnings of all kinds and sizes. The catalogue is also a very complete price list. Interested persons should write for a copy.

MACHINE FOR POLISHING PARQUETRY FLOORING.

Herewith is illustrated a machine for polishing parquetry flooring, designed by Messrs. Malcolm & Souter, of Hamilton, Ont., and which was used to good advantage on about 20,000 feet of parquetry flooring in the new Royal Hotel in that city. Being unable to obtain men to plane and scrape such a large quantity of flooring, Messrs. Malcolm & Souter overcame the difficulty by inventing this machine. They found that the work was done better than by hand, as no plane or scraper marks were left. The machine is a regular disc sander erected on a platform and driven by an electric motor. The plat-



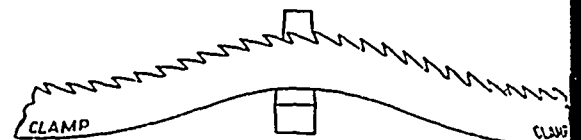
MACHINE FOR POLISHING PARQUETRY FLOORING.

form is on four wheels covered with rubber; the two under the motor are on a centre with handle attached for moving about, and the two under the machine are parallel with the platform and keep the machine steady. The motor is two horse power. The only objection met with was the dust, and this was overcome by hanging cotton sheets on all the openings. This machine can only be used profitably on large contracts, but should they have occasion to use it again, the inventors state that they would attach a small fan on one end of the motor and connect it with the disc, and blow all the dust out with a flexible exhaust pipe of canvas. The machine polished about 36 square feet per hour.

WHY BAND RESAWS BREAK AT BRAZE.

A WRITER in the Wood-Worker asks the cause of band re-saws breaking at the braze, also why they are usually soft at the braze. Mr. A. J. Burton gives the following answer:

If I mistake not, his saws crack $\frac{3}{8}$ inch to 1 inch from the joint. The reason is, he uses too heavy and too hot irons for the gauge of his saws. The irons are probably rough, too, and the rough places leave impressions in the steel if too much pressure is used. For re-saws four to six inches wide, 18 to 22 gage, use irons $\frac{1}{2}$ x $1\frac{1}{2}$ inch, smoothly dressed. If there are scratches in the irons they will show in the braze. Remove the irons soon as they change from a red heat to a sky blue. Do not pour water on braze: it will make it soft at that heat. Using



FINISHING A BRAZE.

a shingle for a fan, fan the braze from the moment you take off the irons until cool, then file off surplus solder and roll (not hammer) the braze until you get some tension in it, and it will be nearer flat than if you use the doghead. With the cross-face hammer, striking light blows, proceed to level up the joint, making it flat as possible. After getting it as flat as possible, bend the saw over a block: as shown in sketch, clamping the saw down at each side of braze. Now file and dress braze, always using the file lengthwise the saw. If he will be careful to not file too much where it is not needed, but leave the braze the same thickness as the saw, then levels it and puts in braze the same even tension as in saw, making the back edge perfectly straight, he will not have much trouble with cracked brazes, for they will last, provided good care is taken of them, until the saw is worn out.

FOREIGN MARKETS

BRITISH MARKET FOR WOOD SPECIALTIES.

LONDON, S. W., 10th August, 1899.

Editor CANADA LUMBERMAN :

DEAR SIR,—As to the demand in the United Kingdom for special stock such as broom handles, skewers, cloth boards, etc., I should judge from what I constantly learn from the trade that woodware and turnery generally are lines in which Canada should be destined to do a large business in this market. At present large quantities of these articles are supplied by the United States, and in certain lines the Americans practically control the United Kingdom market.

With the gradual increase of population, the consequent growth of the domestic demand and the steady consumption of the available supplies of timber, the opinion is largely held here that, the United States will in the near future be less favorably situated for supplying the extensive and also increasing demands of the United Kingdom for goods of the description which you enumerate. A certain amount of trade is, I understand, already done by Canadian exporters in this country, and they will consequently be familiar with the general conditions and main features of the situation. A more extended study, however, of the requirements of this market can safely be recommended to the many Canadians who have facilities at present, but slightly developed, for producing such articles as chair parts, furniture, mouldings, skewers, etc., for which the demand may almost be said to be unlimited.

The trade can be generally described as one of large outputs sold upon a very slender margin of profit. Many of the American manufacturers have resident agents who handle the goods in cargoes and in some cases these goods are worked on the trust system. I am told that in most lines it would be absolutely necessary that the Canadian exporter should have facilities for a large and regular output in order that trade could be at all profitable. Competition is very keen and prices are often at a level which can only render a very low profit to the producer. It is also very essential that any Canadian house entering into this business should place its interests in the proper hands. From past experience I should judge that some of the exporters are too anxious to endeavor to do business direct with the consumer or retailer, whereas the greater bulk of the trade is wholly in the hands of large importers and merchants forming a very extensive connection. There are of course some few exceptions, but I should think that nearly all the largest retailers and consumers obtain their supplies through residential agents or merchants. Canadian exporters would therefore either have to open a branch office in some favorable centre or arrange with some established firm of importers to represent them. At present various of the large houses are interested in United States goods, but there would be no difficulty in finding plenty of suitable merchants to take up and push Canadian goods. Inquiries indeed constantly reach me in reference to such matters.

Whilst in this connection it may be remarked that not only have these established houses a large connection and are thus able to deal with large shipments, but there would be constant and serious financial problems to be encountered by firms trying to deal direct with the consumer of which they would be relieved by the larger merchants.

It is a source of complaint from houses here who have handled Canadian goods that deliveries are apt to be very irregular and the quality, and particularly the finish of goods suffer by comparison with the United States product. Only recently I was personally shown some Canadian broom handles so imperfectly and roughly finished off as to be practically unsaleable.

During the past year or so a number of Canadian producers and British importers have been placed in communication with each other through this office, and inquiries have been made and preliminary reports furnished which I have no doubt as to the possibilities of an extended trade being carried on. Latterly a considerable correspondence has been carried on in reference to birch chair parts for which there is a large demand here, and one firm at the moment is anxious to obtain large supplies of broom handles and mouldings.

Many of these importers constantly visit the United States and would doubtlessly be perfectly willing to extend their route so as to include Canadian houses which were really properly equipped for competing for a share of the trade. Undoubtedly preliminary personal intercourse is very desirable and arrangements could either be made in this manner or through the exporter visiting the United Kingdom and obtaining some personal experience of the conditions ruling here.

These few remarks have been penned for the benefit of the apparently numerous Canadians who have some idea in view of taking up the matter, and I shall at all times be very pleased to obtain any preliminary information for them which might be of assistance. Many houses already conduct large and increasing trade with this country as a result of personal enterprise, and there is plenty of room for others who set about the matter in a practical manner.

Yours faithfully,

HAINIM WATSON,

Curator Canadian Section Imperial Institute.

THE JAPANESE LUMBER DEMAND.

NAGASAKI, JAPAN, August 17th, 1899.

Editor CANADA LUMBERMAN :

DEAR SIR,—The lumber trade at this port is not important, there being a much more extensive business carried on in Kobe and Yokohama. Imported lumber at present is little used in Nagasaki, Japan, except for buildings erected on the foreign plan, consequently the demand is somewhat restricted. The government buildings, (offices, etc.), are now all put up in this style, but unless the Japanese use imported wood for their private houses and other work, the demand cannot be a large one. The higher rates, so long current on the Pacific coast, from whence supplies are drawn, as well as the difficulty of securing tonnage, has checked business effectually, and the imports for the year 1898, (at Nagasaki) totalled only yen 30312. There is, however, a growing enquiry, and it is probable that with lower prices a good trade may be encouraged.

Yours truly,

HOLME, RINGER & CO.

KOBE, JAPAN, Aug. 23rd, 1899.

Editor CANADA LUMBERMAN :

DEAR SIR,—Your favor of July 19th to hand asking for some information as to the Canadian lumber market here. Most of the lumber imported into Japan has come through us, but this business is very uncertain and spasmodic. It is difficult to build up a regular demand. The difficulty we experience mostly is being able to secure the exact measurements as demanded by the Japanese builders and contractors. Their measurements are peculiar to themselves, and unless shipments are exactly to order they are invariably refused. In our opinion, those who want to do the business with Japan must have their own mills here. We believe firmly that if one of the large lumber houses were to erect a small planing mill here and ship over a good lot of mill size lumber by cheap sail freight, and cut the wood here exactly to measurements as required by the Japanese, and cater directly for the Japanese trade, that they would build up a good paying business. The Japanese houses are built to a regular and unvarying Japanese scale, and which is totally different to ours.

We have suffered very much from the lack of attention to the details of measurements, and by having shipments thrown on our hands. There is a big business done here in case making, tea chests, etc. We have had many orders placed with us which in the aggregate comes to a considerable sum, but as each require different shipments and treatment, we find it impracticable to deal with them.

The largest field for lumber now undoubtedly is China, especially the north from Shanghai up, both for building and for railroad ties, if cheap enough to compete with the Japanese shiogi railroad sleeper. Measurements of sleepers wanted are 8' x 9" x 6".

The current price for Oregon pine, rough, merchantable mill lengths is, U. S. gold, \$22.00 per M cubic feet, c. i. f. Kobe, (by sail). There is a big bay here and

good shore landing facilities. Kobe is central and feeds Oraka, Kioto and Nagasaki.

Yours faithfully,

A. J. McGLAW & Co.

DOMINION GOVERNMENT COMMISSIONER'S REPORT.

In the year 1897 Mr. George Anderson, of Toronto, was commissioned by the Dominion Government to visit Japan and report upon the trade openings that exist between that country and Canada. The following extracts are taken from his report:—

LUMBER.

The demand for lumber of all kinds is simply enormous, and this will certainly be one of Canada's largest exports to Japan, and the sawmills of British Columbia should be eager to supply the eastern trade. The Japanese are constantly building, their houses being constructed entirely of wood. The specifications sometimes asked for are large sizes and long lengths, as the contractors desire to cut by hand saw, into the sizes required for building. Douglas fir (British Columbia pine) is considered very satisfactory and cargoes of common lumber will find a market. There is also a large demand for large lumber for docks, ship-building, bridges and government works. The sizes required for railway ties are length, 7 feet, width, 8½ inches, depth, 4¼ inches. Pit props (round poles) for use in coal mines, vary in size from 6 to 12 feet in length, and from 5 to 10 inches in diameter, the annual consumption running into hundreds of thousands of pieces. Lumber is also required for all kinds of packing cases, box shooks, tea boxes and other purposes. Ornamental wood, such as maple, oak, red cedar, &c., for wainscoting, panellings, ceilings and interior decoration of houses as well as for use in manufacturing furniture and railway carriages would find a ready market at good prices. The Japanese are exceedingly tasteful in the interior decorations of their residences. The forests in the main islands are considerably denuded and the government are insisting on the planting of trees for every one cut down. In quoting, Canadian correspondents cannot be too particular in showing the exact cost in gold at point of destination, and I would recommend sending a pro forma invoice naming price on rail of vessel at mill and showing freight, exchange, insurance and interest while in transit.

SHINGLES.

Are used extensively for roofing purposes, being nailed on the sheeting and then covered with mortar, tiles being put on over all. For this purpose No. 2 or 3 quality should find a very large sale. They are also used in the northern part of the Main Island and in Hokkaido, the Northern Island, in the same way as in our own country, with this difference, that bamboo strips are put across the row, the strips being held on by large flat stones, instead of each shingle being nailed. A better quality would be required for this latter purpose.

STAVES, HEADINGS, & C.

There is a very large number of people engaged in the cooperage business, manufacturing cement, sake and other barrels, tubs, firkins, pails and all classes of woodenware. Our large stave and heading manufacturers, who are shipping to other eastern countries, will, I am sure, find a large market in Japan, as the preparation of coopers' material by hand is very laborious work.

PULP.

Paper-making is a large industry in Japan, and wood pulp has already been received from Germany and Sweden. If satisfactory freight rates can be obtained, Canada can readily command this trade with the magnificent resources she possesses in this valuable product.

To commemorate the occasion of the thirtieth anniversary of the Ottawa Free Press, the publishers of that journal have issued an "Illustrated Book on Ottawa." The work is devoted to a description of the prominent buildings and business establishments including the lumber mills, of the city of Ottawa and of the resources of the Ottawa valley. The letterpress is replete with excellent half-tone illustrations and portraits, and from every standpoint the book is deserving of praise. Not the least important feature of the book is a map showing the water powers of Ottawa and within a radius of 45 miles, which is issued under authority of the Board of Trade of Ottawa and cannot but assist in the further development of these powers. A copy of this booklet will be forwarded by the publishers on receipt of 50 cents.



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THE CANADA LUMBERMAN is published in the interests of the lumber trade and allied industries throughout the Dominion, being the only representative in Canada of this foremost branch of the commerce of this country. It aims at giving full and timely information on all subjects touching these interests, discussing these topics editorially and inviting free discussion by others.

Special pains are taken to secure the latest and most trustworthy market quotations from various points throughout the world, so as to afford to the trade in Canada information on which it can rely in its operations.

Special correspondents in localities of importance present an accurate report not only of prices and the condition of the market, but also of other matters specially interesting to our readers. But correspondence is not only welcome, but is invited from all who have any information to communicate of subjects to discuss relating to the trade or in any way affecting it. Even when we may not be able to agree with the writers we will give them a fair opportunity for free discussion as the best means of eliciting the truth. Any items of interest are particularly requested, for even if not of great importance, individually they contribute to a fund of information from which general results are obtained.

Advertisers will receive careful attention and liberal treatment. We need not point out that for many the CANADA LUMBERMAN, with its special class of readers, is not only an exceptionally good medium for securing publicity, but is indispensable for those who would bring themselves before the notice of that class. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which will be inserted in a conspicuous position at the uniform price of 25 cents per line for each insertion. Announcements of this character will be subject to a discount of 25 per cent. if ordered for four successive issues or longer.

Subscribers will find the small amount they pay for the CANADA LUMBERMAN quite insignificant as compared with its value to them. There is not an individual in the trade, or specially interested in it, who should not be on our list, thus obtaining the present benefit and aiding and encouraging us to render it even more complete.

WESTERN CANADA EDITION.

IN November, 1896, the CANADA LUMBERMAN presented to its readers a large amount of information relative to the timber resources and manufacturing facilities of Eastern Canada, embracing the Provinces of Quebec, New Brunswick and Nova Scotia. The number in which this data was published met with a most favorable reception at the hands of the trade throughout Canada, Europe, South America and the West Indies.

Early last June one of our commissioners visited the lumbering district in the neighborhood of Port Arthur, as well as the principal points in Manitoba, the North-West Territories and British Columbia, with the object of gathering information regarding the timber industry of Western Canada. The results of his enquiries are presented in the present number, which will be widely circulated at home and abroad, will, we trust, be read with interest and profit, and assist to further develop the already important and rapidly growing trade in timber products of our western territory.

The advertisement pages form a valuable supplement to the reading pages of this number, and will repay careful examination. They contain the names, addresses and announcements of the leading manufacturers and dealers in the territory mentioned. To the many firms and individuals in the west who have generously assisted us in the preparation of this number our most sincere thanks are tendered.

ADVANTAGES OF ORGANIZATION.

Without appearing to encourage the formation of trusts and combines having for their object the control of the market and exorbitant prices, it may be said that the advantages of organization in the various branches of industry are now generally admitted. For some reason, however, there is an unaccountable lack of organization in the lumber trade of Canada. In the provinces of Quebec, New Brunswick and Nova Scotia no real association of lumbermen is in existence, and this notwithstanding the large number of persons engaged in the trade in this territory. In Ontario peculiar circumstances brought to light within the last two years the Ontario Lumbermen's Association, and we may express the hope that it will continue to wield its influence upon the lumber trade of that province. In British Columbia there is no association, some of the manufacturers, however, being honorary members of the Western Retail Lumbermen's Association of Manitoba. To this latter association belongs the distinction of having been in existence for a longer period than any other lumber association in Canada, and also of having a greater membership. The result of the working of this association stands out as an example of what may be accomplished by careful and thorough organization.

The membership of the Western Retail Lumbermen's Association is steadily increasing. At the time of organization it was intended to confine it to the lumber dealers of the province of Manitoba. The advantages accruing to the retail dealer from membership in the association becoming apparent to many of the lumber dealers of the Territories, some of them repeatedly made application for membership, and eventually the directors decided to extend the district as far west as Fort Qu'Appelle. Then dealers as far west as Moose Jaw made application and were subsequently accepted as members, and to-day the membership of the association extends north from Regina to Prince Albert and along the Edmonton Railway to Edmonton, embracing nearly all the retail dealers in the territory covered by the association. A dealer in the Alberta district, in making application for membership, states: "We have decided to take the step, and are confident that we can get nearly all the retail dealers in the district to become members; there is too much selling in car lots to consumers at wholesale rates by the mill men here, and all dealers feel that an injustice is being done them."

These facts are given to the lumber trade of Canada with the purpose of showing the growth of the Western Association, and how far it is appreciated by its members and of benefit to the trade.

We are informed that the success of the Association has been due in great measure to the loyalty of the honorary members in selling only to active members, in accordance with the by-laws of the Association. The advantages of the Association are that it has prevented the establishment of more than a reasonable number of yards at a given point, and has enabled the dealers to keep in stock a better assortment of lumber. Under this method of doing business, there have been absolutely no failures among members of the Association, and manufacturers have therefore suffered no financial losses.

There seems no reason why an association organized on the above lines, but with such changes as local conditions might demand, would not be a success in other provinces of the Dominion. There is a great field for organization, not alone among dealers, but among manufacturers as well.

WHAT TIME HAS DEMONSTRATED.

The few opponents in Ontario of the manufacturing clause compelling the manufacture of timber within the province have advanced two main arguments first, that the value of standing timber would be depreciated, and second, that the saw milling industry in the province would be crippled. An answer to these arguments may now be given from the experience of the past six months.

The first public sale of timber limits to be held since the enactment of the manufacturing clause, took place at Ottawa on September 5th, when the limits of the late firm of Hale & Booth were disposed of at auction. The most valuable parcel was berth No. 82, on the north shore of Lake Huron, containing an area of 36 square miles. This limit was purchased by Mr. Thos. Pitts, of Bay City, Mich., with whom is associated, it is understood, Mr. John Charlton. The price paid was \$315,000, or \$8,750 per square mile. A few years ago, and long before the manufacturing clause was in force, this berth was purchased by Hale & Booth from the Muskoka Mill & Lumber Company for a sum understood to be \$283,000. Since that time most of the pine timber on 15 square miles of the limit has been cut off, leaving only 21 square miles of virgin timber. It will be seen that the price now paid is somewhat higher than that at which the limit was purchased some years ago, making no allowance for the timber which has been taken from it.

The figure realized also makes a most satisfactory showing when compared with the prices obtained at Government sales. The highest price ever paid for the right to cut timber on Crown lands was in 1892, when the Gilmour Company, of Trenton, paid \$205,625, or \$17,500 per square mile, for a berth of 11 3/4 square miles in the township of Peck. Although this limit was an exceedingly valuable one, it was generally believed that the price paid for it was above the current value of the timber. At this sale a limit of 35 1/4 square miles was purchased by Geo. W. Pack, of Alpena, Mich., at the price of \$10,600 per mile. At the government sale of 1887, \$6,350 per mile, and at the sale of 1897 \$6,600 per mile, were the highest prices obtained. Except in the two cases above mentioned, no timber has ever been sold by public competition at as high a figure as that realized at the late sale of the Hale & Booth limits. These facts, we think, effectually dispose of the argument that the value of timber limits would be appreciably reduced by compelling home manufacture of the timber. It is indeed singular, and unexpected that in the face of the existing conditions Michigan manufacturers should still compete for our timber limits. No better illustration could be given of the value of our timber resources.

The season for manufacturing lumber is now drawing to a close. In the Georgian Bay district the year has been one of the most prosperous in the history of the trade, mills that had

been closed down for years having resumed operations, and all being taxed to their utmost capacity to supply the demand for lumber. Some of these mills have been cutting on logs taken from limits owned by Michigan lumbermen. Indications point to a season of still greater activity next year. We understand, on reliable authority, that several of the Michigan lumbermen have made arrangements for logging operations this winter on their Georgian Bay limits, and that if unsuccessful in their attempt to secure the abrogation of the Ontario Legislation, they will manufacture the logs in Ontario. The result of this will be that new mills will be erected on the Georgian Bay, and that the industry will flourish under the new regulation which, instead of crippling the business, has brought to it increased activity.

Apropos of this subject, we observe that the Michigan lumbermen have filed a petition of right at Osgoode Hall, Toronto, preliminary to commencing an action for damages against the Ontario Government. The Government has also filed its defence, in which it is pointed out that all licenses granted are to be subjected to such conditions, regulations and restrictions as may be established, and that no such license shall be granted for a longer period than twelve months. Granting that the courts should decide that the Michigan lumbermen are entitled to be recompensed, the people of Ontario will, as we have before stated, back up the Government in paying the amount of damages decided upon, such is the satisfaction given by the law prohibiting the exportation of saw logs.

A WRONG TO BE RIGHTED.

The thanks of the lumber trade of Canada are due to the Hon. R. R. Dobell, of Quebec, for the efforts which he has recently made to secure the removal of the discriminating insurance rates recently imposed by the British Underwriters on shipments of timber products from Canadian ports. Through Mr. Dobell's influence a meeting was recently held in the London Chamber of Commerce to consider this subject. Mr. Dobell addressed the meeting at considerable length and presented arguments to show that the dangers attending ships using the St. Lawrence route are not of a character to justify the discrimination in insurance above referred to. This discrimination in the case of a steamer valued at £23,000 amounted to £1, 1s. per cent. additional premium and an extra charge of £1, 1s. per cent. if the vessel left England for Canada later than the first of September. Mr. Dobell stated that his firm had now under charter a steamer from the United Kingdom to Quebec on which the sum of £700 extra charges must be paid above what would be necessary if the steamer were sent to Bangor, Maine, instead of to Quebec.

As proof of the reasonable safety attending shipments of lumber from Quebec by the St. Lawrence, Mr. Dobell stated that out of 240 steamers loaded by his firm in 1898 only one was lost, while of the 190 steamers employed to date this year no loss had occurred. In support of his argument for the removal of the discriminating charges, Mr. Dobell referred to the improvements which have recently been made

and are proposed to be made by the Canadian government to insure the safety of vessels traversing the St. Lawrence. Among these may be mentioned the placing of a powerful fog siren on the north-east side of Belle Isle, the building of an additional lighthouse on the coast of Newfoundland, and the replacing of two light ships at the narrow channel known as The Traverse, by a permanent lighthouse. In this connection it should be mentioned that the Hon. Mr. Tarte, Minister of Public Works, on his return from Europe recently, stated that such further improvements as may be required to perfectly insure the safety of vessels on the St. Lawrence will be carried out in the near future. Some of the losses which have occurred in the past have been due to excessive deck loads, but as was intimated by Mr. Dobell this cause of accident has been eliminated by the bill passed at the last session of the Canadian Parliament which makes it compulsory for every vessel to have her deck load passed by the port warden, or in the absence of such an official, provision is being made for some expert to supervise the various ports to see that ships are properly loaded. Mr. Dobell made timely reference to the fact that with the deepening of the canals the natural tendency of shipping from the North-western States and the Canadian Northwest would be to pass down the St. Lawrence, consequently it was of the utmost importance that no obstacle should be placed in the way of trade development having such an important bearing on the prosperity of Canada and the promotion of trade intercourse between the Dominion and Great Britain.

A resolution was passed at this meeting urging the insurance authorities to amend the present regulations in such a way as to remove the disadvantages imposed on the Canadian trade. It was further resolved that another meeting should be held at a future date to further discuss the question in the light of additional information which can no doubt be obtained and presented. It would strengthen the arguments advanced by Mr. Dobell if statistics could be presented to the insurance authorities showing the losses on vessels and cargoes from Canadian ports for a given number of years as compared with vessels in the same line of trade carrying shipments from other countries; also what proportion of such losses were due to the practice of overloading decks.

This is one of the most important questions affecting the Canadian export trade in many lines that has ever arisen. Every effort should be made by the Canadian government and those interested in the trade development of Canada to bring about a more satisfactory condition of affairs at as early a date as possible. The recent disaster to the steamer "Scotsman" is likely to strengthen the prejudice which already prevails among British insurance authorities against the St. Lawrence route. Therefore the causes which led to this accident should be made the subject of careful inquiry, so that it may be definitely known whether the disaster was due to lack of proper marine safeguards or to carelessness or error of judgment on the part of the officers in command of the ship. If anything is required to make the St. Lawrence route safe

for shipping, the necessary improvements should be made without delay. On the other hand, if this route is now up-to-date in this particular, evidence of the fact should be put in the clearest possible form before the insurance authorities and a persistent effort made to have the charges on vessels coming to Canada put on an equality with those imposed upon vessels loading for American and other ports. The large expenditures made by the Dominion government in recent years for the improvement of the canals with the object of attracting to the St. Lawrence route the immense shipping trade of the North West, will be to a large extent nullified if the present discrimination in insurance rates is allowed to continue.

EDITORIAL NOTES.

TANGIBLE proof of the improved commercial conditions prevailing, particularly in the lumber trade, is found in the large number of timber properties which are now on the market in Canada and the United States. The value of some of these properties which have recently been brought to our notice is over one million dollars. Developments will be watched by the financial world with much interest.

THE cost of logging operations during the coming winter will be considerably greater than for several years past. From every section of the Dominion comes the report that woodmen are being engaged at wages much higher than last year, in some instances the increase being as great as five dollars per month. It is not alone this one factor however. Practically everything pertaining to lumbering, such as food, axes, logging chains, and other supplies are selling at higher figures. It is well for lumbermen to fully reckon upon these advances, which must necessarily increase the cost of lumber, and also to give due consideration to the possibility of lumber prices weakening in the spring of 1900. The precaution which we would advise is to operate moderately, and seek to make a fair margin of profit on a limited production, and at the same time assist to maintain the strength of the market.

THE CANADA LUMBERMAN has received an inquiry for the address of the manufacturers of a of a boiler specially built for putting steam on snow roads, to assist the transportation of sleds. So far as can be learned, there is no special sprinkler in use in Canada for making logging roads. We understand that some lumbermen have adopted the method of sprinkling the roads, but that the sprinkler is usually a home-made contrivance. Mr. J. R. Booth, of Ottawa, employs an ordinary box about 16 feet long, six feet wide, and four or five feet high, with two holes in the rear end to allow the water to escape onto the sleigh track. It is necessary, of course, to use the plough in advance of this in making the road, but when the road is once made, all that is required is to run the sprinkler over at the close of each day's work to keep it in running order. Should a more improved sprinkler be in use in any part of Canada, THE LUMBERMAN would be pleased to be furnished with particulars.

British Columbia

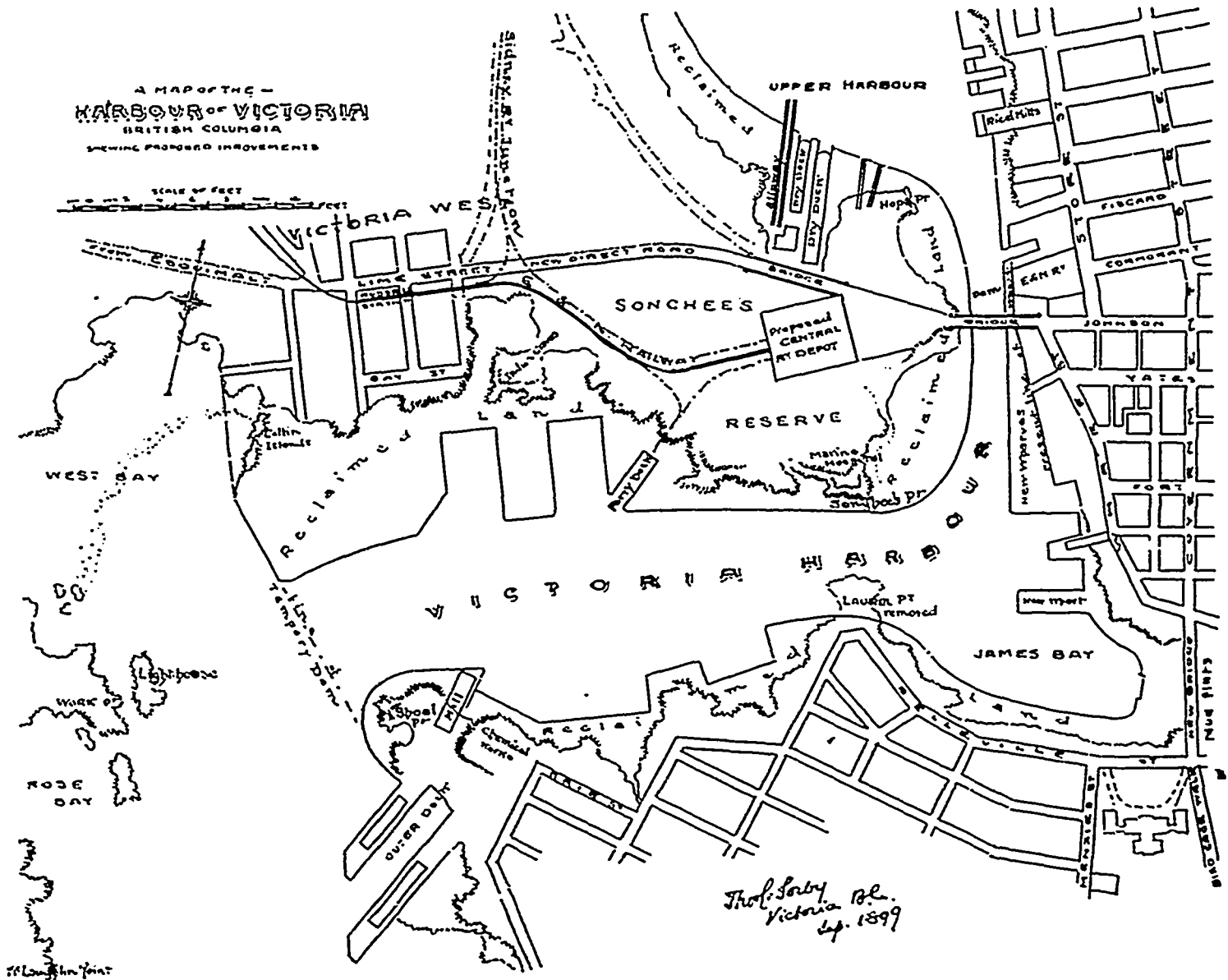
THE TIMBER RESOURCES AND THEIR DEVELOPMENT.

A CONSIDERATION of the natural sources of wealth possessed by the Province of British Columbia leads very quickly to a view of the forest wealth of the province, which may be said to include the greatest area of merchantable timber in Canada and possibly on the continent of North America. Great as the area still is, it would

the province, owing to the humidity of the climate and the dense growth of the timber. So slow, too, has been the extension of the industry of turning the timber wealth of the country into merchantable commodity, it is not nearly equal to the increase, actual or theoretical, of the timber by growth.

The development of the mining industry which has been much more extensive in the interior than on the coast, has been a factor in the de-

Columbia is, in a measure, curator of this great timber not only for her own enrichment but for the industrial necessities of the sister provinces, which are year by year increasing in population to an extent that will soon bring the weight of numbers in the broad Dominion, west of the Great Lakes. For their timber supplies the whole of this great western territory will in time be entirely dependent upon the store-house of this province, as indeed some considerable parts



have been much greater but for the destructive forest fires which raged in the interior in the early years, when the preliminary stages of development were in progress. The loss of wealth by this destruction of timber, while very great, is, however regrettable, an exigency that could hardly have been provided against owing to the unsettled state of the country and the rugged character of its surface.

As the greater portion of the choice timber areas and those most accessible, are contiguous to the coast or on the lower levels of the province, the effect on the supply is not noticeable. The ravages of fire never have been nor can be as serious or widely spread in these portions of

struction of timber of correspondingly greater influence.

Despite the losses by fire that have depleted the forests of British Columbia, to-day the timber resources form a vast treasure house of wealth which remains to be drawn on for generations to give support and employment to an ever-increasing population. To conserve this vast wealth and at the same time to develop it to the greatest possible extent for the enrichment of the people will be an important subject for the intelligent citizens to study.

By her geographical position situated close to the vast treeless plains of the North-west Territories and Manitoba, the province of British

are now. In spite of inventions and the use of metals in the industrial world, wood has held its place and apparently will continue to do so, and, as the prairie provinces to which reference has just been made are almost purely agricultural, their demands for lumber will always be large.

THE EXPORT TRADE.

While not forgetting the home market, which is thus assured to the product of British Columbia forests, and which is already a customer for a large percentage of the present output of our mills, it is well to turn to the export trade, which offers not a future but a present large and growing market, and the proper fostering of which

would, it seems, result in a very large increase in the annual output. The markets that are opening are not only those countries whose home supply of timber is becoming exhausted, but other countries which have always imported and find their sources of supply being cut off. In addition there are countries, notably the Oriental nations, where the innovation of modern methods has revolutionized conditions and developed, and in some instances created, commerce. This expansion has been felt in all other lines of staple commercial commodities, so that it is not surprising to note that its effect has also been apparent in the timber trade.

Russia, with her trans-Siberian railway and development of seaport facilities and establishment of commerce on the Pacific; Japan, with her new-found civilization and commercial awakening, are examples of newly created markets, which are immense factors in any commerce. Even China is among the possibilities of trade development. Australia and the other British Colonies are being yearly brought into closer touch with this province, and their requirements include increasing quantities of lumber, shipments of which have increased even in the past year.

The republics that form the greater portion of the South American continent are yearly growing to be reckoned as a commercial factor, and trade with them is increasing and possibilities are great. The foregoing instances will suffice to indicate the vast expansion possible in the export trade in lumber. Nothing has been said of the United Kingdom and Europe, for there the British Columbia product would come into possibly unfair competition with Norway and other European sources of supply. It is quite true past experiences have been largely discouraging, especially in the export branch of the industry, but indications are that some shipments will continue to go forward to Great Britain.

The past year has witnessed a revival of the industry equalling the activity in other lines throughout the industrial world. The changing conditions and extending circle of commerce have, however, produced a situation which it is not too optimistic to expect is a permanent change of base in the timber industry. This being true, there is the possibility that instead of a temporary activity, the timber trade of British Columbia is developing to an extent which it is quite capable of manufacturing should the demand continue. As it becomes known the timber of British Columbia forests cannot fail to become popular, its quality being unsurpassed, combining durability and beauty, when finished, with extreme facility of working. Its size and the straight and even texture of the fibre are recommendations also.

THE VARIETIES OF TIMBER.

Passing from the general survey of the resources of British Columbia as an economic factor, it is in order to devote a paragraph or two to a particular notice of the different species of wood which are found in the British Columbia forests.

Easily first in point of appearance as well as utility is the great Douglas fir, whose tall, straight boles standing out clear and distinctive as they grow on their native hillsides form an emblem at once striking on account of their individuality and the notion of strength inspired.

The Douglas fir, it may be noted, was named after David Douglas, a botanist who explored new California in the first quarter of this century. It is distributed over a wide area from the coast to the summit of the Rocky Mountains and as far east as Calgary, N.W.T., and being found as far north as opposite the northern extremity of Vancouver island on the coast, and even farther in the interior. On the coast it attains the greatest proportions, specimens being sometimes found rising to a height of 300 feet with a circumference of 30 to 50 feet at the base. The ordinary average, is, however, about 150 feet clear of limbs, with diameter of 5 or 6 feet at the base. The characteristic, straight, clear stem, bare of branches almost to the top, makes the tree peculiarly valuable from a lumbering point of view. It is the staple article of lumber in the province, and has a wide range of usefulness, being especially adapted, owing to its great strength, for use in structural work. It is very heavy, being almost of the same specific gravity as oak. Some results of tests of Douglas fir made at McGill University, Montreal, appear on another page.

The next most important species, from an industrial standpoint, is the red cedar, commonly known as British Columbia cedar. It is found all over the province, but it is on the coast that it reaches its greatest development, where it has in some instances attained to such a size as to be placed on the list of show pieces for tourists to visit and admire. Stories are familiar of the comparisons which have been made to illustrate the great girth of these trees—one now stands in Stanley Park, in the hollow of which a horse and rig can stand; in the early days a real estate man had a photograph taken of a hollow cedar log which he had fitted up as an office. Its chief economic value is for making shingles, being the principal or only material used for their production in British Columbia and for interior finishing, the coloring being rich and of beautifully varied shades, besides being susceptible of taking on a beautiful polish. For this latter it is finding an increasing market in eastern Canada, where it is being used more extensively every year. The shingles manufactured from the cedar are very largely used in Manitoba and the Northwest Territories. Available supplies of good quality of this splendid native wood are unfortunately becoming limited. It is consequently advancing in value very rapidly.

The cypress, or yellow cedar, is a tree which exists in large quantities in the province, but has not been manufactured into lumber to any extent. It is not scattered over so great an area as the red cedar, being found in the interior of Vancouver Island in great quantities and on the mainland near the coast in the northern part of the Province, and also on Queen Charlotte Islands. While it has not yet come into much notice, it forms a valuable reserve in the timber supply of the country. It is a valuable wood, being of great strength and durability, and takes a beautiful finish. It grows to great dimensions.

The white spruce, which is a very useful timber, grows in low swampy lands, and does not occur in large compact bodies, but interspersed among fir and other trees. It almost equals the fir in circumference, but does not grow to such a height nor is its stem so clear of branches. Its range of usefulness is more varied than that of

any other of the native woods. It is specially adapted to working up by machinery, so that it is used, as is the cedar, for making doors. Boxes, fruit cases and barrels are also made from the spruce. It is also used to some extent as a finishing wood and is well adapted for it. Perhaps the greatest future for utilization of spruce is in the manufacture of paper pulp, for which it is beyond comparison, the best adapted of all native woods. Some day the vast quantities of this material now going to waste in British Columbia will be turned into pulp. At present the industry is not being exploited, though it will some day be an important one in the province. Further north the quantity of spruce and the proportion compared with other trees increases.

Hemlock is a timber found in considerable quantities up the coast, but being less desirable than fir, will not likely be much used until the latter becomes much scarcer. Balsam, which is of little use except for pulp-making, is found in large quantities, while white pine, yew and tamarack also occur, though in smaller quantities.

Of hardwoods the maple, alder, birch and oak are found, but none of them are found of particular commercial value. The maple and alder occur usually in low bottom lands and their presence indicates great richness of soil. The maple, especially the large leafed variety, is pretty widely scattered. The oak, which is dwarfed and gnarly, and of no value other than as a shade tree, is mainly found in the southern part of Vancouver island. The poplar or cottonwood is a common tree and the only use heretofore made of it is in manufacture of excelsior and in barrel-making. In the future its chief economic value will be in the manufacture of paper pulp, for which it is excellently adapted and the quantities in which it is found render it a very cheap raw material.

THE TIMBER AREAS.

While the forest covering is pretty well distributed over the province, there are localities which are looked on as the producers of the lumber available for commercial purposes. On both Vancouver island and the mainland the timber limits are located, and they are of very large extent. On Vancouver island the principal timber areas are in the valleys of the Cowichan, Chemainus, Little and Big Qualicum, Campbell, Comox, Nanaimo, Englishman's Salmon, and Adam's rivers, French creek, Black creek and Alberni valley, and along the tributaries of these rivers and other streams; on the islands of the Gulf of Georgia, namely, Cracow, Harwick, Valdez and others. On the mainland, in Westminster district, the principal locations are on the Fraser, Stave and Pitt rivers, Burrard inlet, Howe sound and in south Vancouver, on the inlets of the coast as far as Knight's inlet. As already mentioned, the timber north of Knight's inlet is mainly yellow cedar or cypress with increasing quantities of spruce, which are timbers that will yet become valuable. In the interior there are merchantable timber areas in east and west Kootenay, the Okanagan valley and the Cariboo district, and on the upper Columbia river.

A feature of the forests of British Columbia, especially of the coast, is their density. As much as 500,000 feet of lumber has been taken

from a single acre, while, by way of comparison, in eastern Canada 20,000 is considered not a bad average.

Reliable figures place the timber area of the province at 285,554 square miles, but this, of course, includes much small timber not suitable for milling.

As the annual forest increase by growth is an element which can hardly be checked up, it is, of course, not possible to compare the annual increment with the annual timber cut and the reduction by destructive fires, and thus form an idea of the net increase or diminution of the available timber resources of the province. The conservation of the forests is a matter of public interest. There is annually a great deal of unnecessary waste by forest fires and in clearing land, the checking of which will become a serious question as the years go by.

The actual available timber supply of the province is in no great danger of serious diminution, as there is to be considered the extremely rapid growth especially in the warm, humid climate of the coast regions. There are, too, large areas of land which, when cleared of timber, are of no value for cultivation and will as a consequence be allowed to return to forest for second growth of timber will soon spring up.

TIMBER REGULATIONS.

Both the Dominion and provincial governments control areas of timber lands, consequently leases or limits can be obtained from each.

Under the Dominion timber regulations, all licenses to cut timber are disposed of by public competition. Parties tendering are to state the sum per square mile which they will pay over and above ground rent and royalty, certified cheque to accompany tender, and the highest bid being accepted. The length of any berth is not to exceed three times the breadth thereof. The licensee is required to pay a ground rent of \$5 per square mile, except for lands situated west of Eagle's Pass in British Columbia, in which case the charge is five cents per acre. Within one month after obtaining a timber berth the licensee is required to pay one year's rental in advance, and if not then paid interest at 6 per cent per annum is charged, the licensee is to pay a royalty of 50 cents per thousand feet on sawn lumber, 1½ cents each on railway ties 8 feet long, and 1¼ cents on ties 9 feet long, 25 cents per cord on shingle bolts, and 5 per cent. on sales of all other products of the berth. The latter is calculated on the average price of lumber for three months previous to payment of dues. The royalty on lumber from burnt timber is 2½ per cent. A rebate of 40 cents per thousand is allowed on all lumber exported from the Dominion. All timber from the berth must be manufactured into lumber at the saw mill of the licensee. Licensees must keep in operation a saw mill capable of cutting 1,000 feet B. M. every 24 hours for every 2½ square miles of area licensed, or establish such other wood manufactory as shall be satisfactory to the minister of the interior.

Right to cut timber on crown lands owned by the province may be obtained in several ways, the simplest being to take out an annual license at the cost of \$10, entitling the holder to cut timber as a hand logger upon crown lands after timber limits without reservation as to area. Timber cut under such license is subject to

royalties to the crown; special license, valid for one year, may be obtained by payment of \$50, entitling holder to cut timber on a specified area not exceeding 1,000 acres, subject to payment of royalties. Timber leases are put up for public competition for periods not exceeding 21 years, and may be granted to the tenderer who offers the highest cash bonus in addition to an annual rental of 15 cents per acre, and the payment of royalties. A rebate of 5 cents per acre may be obtained by erecting a saw mill on or in connection with the leasehold. Royalties payable to the crown are 5 cents per 1,000 feet B. M. on all timber, 50 cents per cord on railway ties and mining props, 50 cents on every 200 running feet of piles, and 25 cents on every cord of wood.

MANUFACTURE OF LUMBER.

Government statistics of a complete and accurate nature as to the development of the lumber industry and the annual lumber cut only date from 1888, in which year the present Forestry Inspector, Mr. R. J. Skinner, was appointed to the position then newly created by recent legislation. Since that time Inspector Skinner has furnished the Department of Lands and Works with a very complete and accurate report containing in convenient form the lumber cut of the year and other valuable figures. These reports have been from year to year embodied in the annual report of the Chief Commissioner of Lands and Works, and from them the figures given in this article as to the annual output of lumber are largely taken.

According to the Forestry Inspector's returns, the following is the lumber cut for each year since the office was established:

Year.	Lumber Cut, Feet.
1888	31,868,384
1889	43,852,138
1890	79,177,055
1891	83,188,335
1892	64,186,820
1893	60,587,360
1894	64,498,227
1895	112,884,640
1896	112,957,106
1897	105,939,377
1898 (11 months ending November 30) ..	124,546,658

A study of these figures will show that the lumber cut of last year was just four times that of ten years ago. A very substantial consideration, however, is that some of the largest mills in the province were not in operation. It will also be observed that for a number of years the lumber cut had suffered a considerable diminution, though the past three or four years have shown a steady and satisfactory growth, due to improvement in both export and domestic trade. This year the lumber cut will be very much larger than for any year in the history of the lumber trade in the province, as almost every mill is in operation and many of them are working day and night.

The area of timber lands, held under lease from the crown, or from which lumber was cut under royalty, is over 1,200 square miles, which is but a small portion of the 285,544 square miles of timber lands in the province.

THE MARKETS.

As referred to in the beginning of this article, the market for the product of British Columbia saw mills is found in the prairie provinces and territories of Canada, east of the Rocky Mountains, in the countries of Asia bordering on the Pacific Ocean, in Australia and in South America, while European shipments have been

made, though that cannot be said to be a regular factor of the export lumber trade of the province as yet.

Australia is at present one of the largest customers, and that trade is but now beginning to expand. This is largely due to direct effort, the head of one of the large lumber concerns having paid a visit to Australia last year and established a representative there, with satisfactory results already. Such efforts, if extended and aided by the government, which annually draws large revenues from the industry, would yield handsomely in the extension of the foreign export trade.

The total export of 1899, though light for the first six months of the year, gives excellent promise of increase, as the Hastings saw mill has been rebuilt on a much larger scale, and the Barnet mills, idle for a number of years, are again being operated, while other enterprises in the lumber industry are on the tapis.

The domestic export trade of lumber to Manitoba and the Northwest Territories, which is practically the only market outside of British Columbia other than by sea, gave a grand total of nearly 24,000,000 feet in 1897, and in 1898 the total was 18,752,730 feet. This trade, which is rapidly growing, is a very satisfactory feature in the market for British Columbia lumber, inasmuch as the great area of country comprised must look to this province more and more each year for its timber supplies, so limited are its own areas of timber and so nearly exhausted are the nearby sources from which it has drawn in the past. Taking this, with the great increase of population on the Canadian prairies and the prosperous years which have been inducing immigration, and the lumber trade of that country will be seen to be a factor capable of enormous increment in the next few years, when the population will no doubt have more than doubled.

The growing consumption of lumber within the province of British Columbia must not be forgotten, as the rapid building up of towns and cities everywhere and the starting of new towns by successful mining camps, has created an unprecedented demand for lumber for home consumption. By reference to the forestry inspector's figures of lumber cut in the province and comparison with the domestic and foreign export, it will be seen that the home market was a customer in 1897 to the extent of some 35,000,000 feet, and in 1898 of 75,000,000 feet. This home demand has been an aid to improving business very materially, furnishing as it has, in the course of using that large quantity of lumber, employment to a large number of men, and the employment has been practically permanent.

OTHER MANUFACTURES.

The principle manufacture, other than lumber from timber, is at present that of shingles, which are altogether made from the red cedar. Almost the whole supply of shingles for Manitoba and the North-west Territories is drawn from this country, and together with the home demand the total production yearly is very large.

Cooperage works and the manufacture of excelsior are also to a small extent factors in using the timber product of the province. Some day the making of paper pulp will utilize large quantities of what is now largely waste timber in this province and the possibilities in the establishment of that industry should be very attractive to capital seeking paying investment.

The requirements of piling for wharves, etc., and timber for mining props are two ways in which large quantities of timber in the rough are used every year. The timber industry is but in its infancy even with all the present means of consumption, and its future is one of great promise for British Columbia.

H. G. Ross.

VANCOUVER, B. C., Sept. 12th, 1899.

STRENGTH OF CANADIAN DOUGLAS FIR.

HEREWITH are given, in part, the results of tests made under the direction of Professor Bovey in the testing laboratory of McGill University, Montreal, to determine the strength of British Columbia Douglas fir. There were tested, in all, twenty-five beams, of which the following particulars and illustrations are given:

Beam I was of good average quality, with annual rings as in Fig. 3. At 45,000 lbs. the beam failed by the tearing apart of the fibres on the tension face.

coast section of British Columbia, and felled in the fall or during the winter. They were free from knots, of good quality, and with the grain running straight from end to end.

Beam IV showed annual rings somewhat oblique, as in Fig. 6. At 16,720 lbs. it failed by shearing longitudinally along a plane A B at right angles to the annual rings. After the beam had sheared longitudinally the load was again applied until it amounted to 15,000 lbs., when fracture occurred by the tearing apart of the fibres on the tension face.

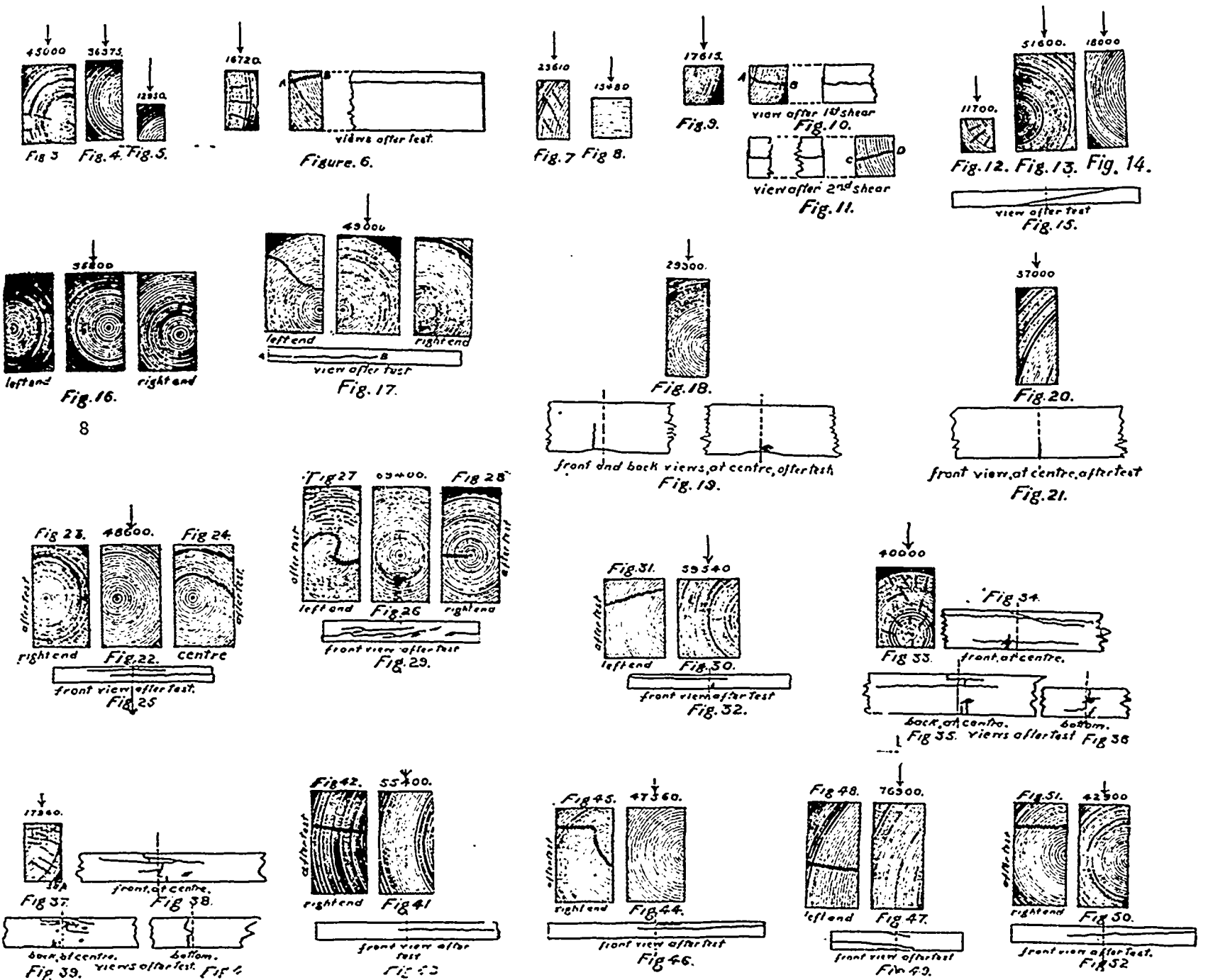
Beam V showed annual rings as in Fig. 7,

shear a load of 8,990 lbs. was applied, when the beam was fractured by the tearing apart of the fibres on the tension face.

In Beam VIII the annual rings were oblique, as in Fig. 12, and at a load of 11,700 lbs. it failed by the tearing apart of the fibres upon the tension face.

Beams IX to XVI were sent to the laboratory by Mr. P. A. Peterson, chief engineer of the Canadian Pacific Railway.

Beam IX was grown on the mainland half way between Vancouver and New Westminster, in a flat country not much above the sea level.



Beam II was of good average quality, with annual rings running as in Fig. 4. At 36,575 lbs. the beam failed by shearing longitudinally. After the fracture the load upon the beam was again gradually increased to 34,000 lbs. before a second failure occurred.

Beam III was of a specially excellent quality, with clear, close, parallel grain, perfectly sound and free from knots, with annual rings as in Fig. 5. At 12,950 lbs. the beam failed by shearing longitudinally.

Beams IV to VIII, sent to the laboratory by the British Columbia Mills, Timber & Trading Company, were cut out of trees grown on the

and failed by the tearing apart of the fibres on the tension face under a load of 23,610 lbs.

Beam VI showed annual rings as in Fig. 8. Under a load of 15,480 lbs. it failed in the same manner as beam V.

Beam VII showed annual rings as in Fig. 9. Under a load of 17,615 lbs. the beam sheared longitudinally along the plane A B, Fig. 10, the distance between the ends of the portions above and below the plane of shear being 3-16 of an inch. The load was again applied until it amounted to 11,840 lbs., when there was a second longitudinal shear along the plane C D at the other end, Fig. 11. After this second

It was cut from a log 26 inches in diameter and 34 feet in length, felled in the month of May. The log lay in fresh water for ten months. It was of first quality, with grain straight and running parallel to the axis. It contained a season crack on the widest face about 11 feet long, 3½ inches below the edge and about 1½ inches deep. Annual rings were as in Fig. 13, the heart of the tree being in one of the vertical faces. Under a load of 51,600 lbs. the beam failed at the support by the tearing apart of the fibres.

Beam X, with annual rings as in Fig. 14, was cut from a log 32 inches in diameter grown on

the mainland 120 miles north and west of Vancouver, on a hillside about 100 feet above the sea level. The log was felled in the winter and remained in salt water six months. The grain in this beam ran crosswise, and it failed by a cross fracture along the plane A B, Fig. 15, under a load of 18,000 lbs.

Beam XI—History same as that of beam X. Timber was of first quality, and grain parallel with axis. The beam contained the heart of the tree, with annual rings as in Fig. 16. Under a load of 35,800 lbs. the beam failed by the tearing apart of the fibres upon the tension face.

Beam XII, with annual rings as in Fig. 17, was cut from the log 28 inches in diameter grown about 30 feet above the sea level about eight miles from Vancouver. Tree was felled in August and remained in salt water nine months, being alternately wet and dry, according to the tide. The timber was of good quality, straight grained, with several knots of medium size and a few season cracks; beam contained the heart of the tree. Under a load of 49,000 lbs. the beam failed by shearing longitudinally along the season crack A B.

Beam XIII History same as that of beam IX., with annual rings as Fig. 18. Timber of good quality, several small cracks along the back of the beam, and small season cracks along the whole of the front about three inches above the face in compression. At 29,300 lbs. the beam failed by the crippling of the fibres on the compression face, commencing at a small knot at the back (Fig. 19).

Beam XIV is in reality beam XIII re-tested. The beam was replaced in the machine with the crippled side reverse, so as to be in tension. At 17,600 lbs. it failed on the tension side by the tearing apart of the fibres along the surface at which the crippling took place on the previous test.

Beam XV, with annual rings as in Fig. 20, was timber of first quality, clear and straight grained, and free from knots, its history being same as that of beam XII. At 37,000 lbs. it failed by the crippling of the fibres on the compression face, Fig. 21

Beam XVI is beam 15 re-tested. The beam being reversed, it failed under a load of 25,580 lbs. at the point at which the crippling had previously taken place. A load of 32,000 lbs. was then applied, when the beam fractured a second time on the tension side.

Beams XVII to XXI were sent to the laboratory by the British Columbia Mills, Timber & Trading Company, and were cut on the coast section of British Columbia.

Beam XVII was coarse grained, contained a

number of small knots on the compression side, was cut from the heart of the tree, with annual rings as in Fig. 22. At 48,600 lbs. it failed by the tearing apart of the fibres on the tension face, which was followed immediately by a longitudinal shear coincident with the neutral plane at the centre of the beam and extending for a distance of eight feet from the end, Fig. 25.

Beam XVIII was cross grained, contained several knots, was cut from the heart of the tree, and showed annual rings as in Fig. 26. At 69,400 lbs. the beam failed by shearing longitudinally, the shear being immediately followed by the tearing apart of the fibres on the tension face, Fig. 27, 28, 29.

Beam XIX was of exceptionally good quality, with clear, close grain, no knots, and annual rings nearly vertical, as in Fig. 30. At 59,540 lbs. it failed by longitudinal shearing, followed by the splinting of the upper edges on the tension side, Fig. 31, 32.

Beam XX was cut from the heart of the tree, with annual rings as in Fig. 33, was coarse grained and contained a number of knots. At 40,000 lbs. it failed by the crippling of the fibres on the compression side in the neighborhood of a small knot $1\frac{1}{4}$ inches above the compression face, Fig. 34, 35, 36. The load was gradually increased to 49,600 lbs., when the beam again failed by tearing apart of the fibres and tension face.

Beam XXI—Annual rings as in Fig. 37. At 17,960 lbs. a sharp fracture took place by the tearing apart of the fibres on the tension side, accompanied by a simultaneous crippling of the fibres upon the compression side, Fig. 38, 39, 40.

OLD DOUGLAS FIR.

Beams XXII-XXV were four old stringers taken from trestles. Beam XXII had been in position for nine years, in a dry country, with very little rain fall, and subject to a hot sun in summer. The annual rings were as shown in Fig. 41. At 55,400 lbs. the beam failed by a longitudinal shear, as in Fig. 42 and 43.

Beam XXIII was taken from a trestle near Port Moody, and had been in position for a period of six and one-half years in a place subject to the heaviest rainfall in the province. Annual rings as in Fig. 44. At 47,560 lbs. the beam failed by the tearing apart of the fibres of the tension face, which was immediately followed by a longitudinal shear, as in Fig. 45 and 46.

Beam XXIV was cut from a log grown on a bench near Spuzzum, about 500 feet above the sea level, and had been in position eleven years in a district with a climate similar to that of

Nova Scotia. Annual rings were as shown in Fig. 47, and the beam contained several knots and season cracks. At 41,000 lbs. material at one end of the beam was crushed in. The ends, partially decayed, were sawn off and the load increased to 76,900 lbs., when the beam failed by longitudinal shear.

Beam XXV had been in service on K. loops Lake for a period of eight years. The annual rings were as in Fig. 50, with heart showing on one of the faces. At 42,900 lbs. a large splinter broke off on the tension face and the beam failed by longitudinal shear, as in Fig. 51 and 52.

The following table gives a summary of the results obtained:

BEAM.	Dimensions in inches.	Weight in lbs. per cubic foot at date of test.	Maximum skin stress in lbs. per sq. in.	Coefficient of elasticity in lbs.
NEW TIMBER, SPECIALLY SELECTED.				
III.	66 x 5.375 x 4.125		10,441	2,178,100
XIX.	138 x 12.1 x 9.1	41.22	9,643	1,934,500
VII.	69 x 6 x 5.8125	39.92	8,712	2,044,115
XV.	198 x 15 x 6.125	38.92	8,020	1,899,400
NEW TIMBER, FIRST QUALITY.				
X.	198 x 14.875 x 6	37.80	4,077	1,629,615
XI.	204 x 14.875 x 8.6875	36.99	5,698	1,770,565
IX.	204 x 14.875 x 9	35.76	7,691	1,764,939
VIII.	69 x 5.125 x 5.5	35.74	8,382	1,534,692
XVIII.	138 x 17.8 x 8.76	35.59	5,196	1,329,600
XVII.	138 x 15.125 x 9	35.17	4,907	1,239,600
XX.	138 x 12 x 8.88	34.92	6,559	1,571,150
XII.	204 x 14.875 x 8.8125	34.79	7,045	1,678,500
XIII.	204 x 14.75 x 6.6	34.13	6,912	1,643,100
XXI.	138 x 8.98 x 5.95	30.83	7,784	1,588,400
VI.	69 x 6.125 x 6	30.23	7,116	1,489,215
I.	96 x 12.125 x 9		4,897	1,138,600
II.	66 x 12.125 x 5.625		4,378	1,146,000
V.	69 x 9.125 x 5	29.18	5,869	916,475
IV.	69 x 9.125 x 5	28.27	4,156	926,500
OLD TIMBER.				
XXIII.	186 x 14.35 x 8.78	38.59	7,339	1,878,050
XXII.	162 x 15.0875 x 7.75	33.75	7,086	1,665,575
XXV.	144 x 15.65 x 8.2	33.11	4,613	919,775
XXIV.	132 x 16.2 x 7.75	32.8	6,135	1,201,625

J. A. SAYWARD.

The business of J. A. Sayward was established in 1859 by his father, Mr. W. P. Sayward. The mill is located at Victoria, B. C., on one of the most convenient points of the inner harbor, with a view of catering to local and foreign trade. The saw mill is a two storey building, 220 x 110 feet and is shown in the accompanying illustration.



SAW MILL OF J. A. SAYWARD AT VICTORIA, B. C.

tion. The capacity is 50,000 feet in ten hours. Besides the ordinary product of rough and dressed lumber, laths and shingles are also manufactured.

Mr. Sayward owns extensive timber limits, chiefly of cedar and spruce, which were among the first located on the coast, and therefore containing some very fine timber. He operates

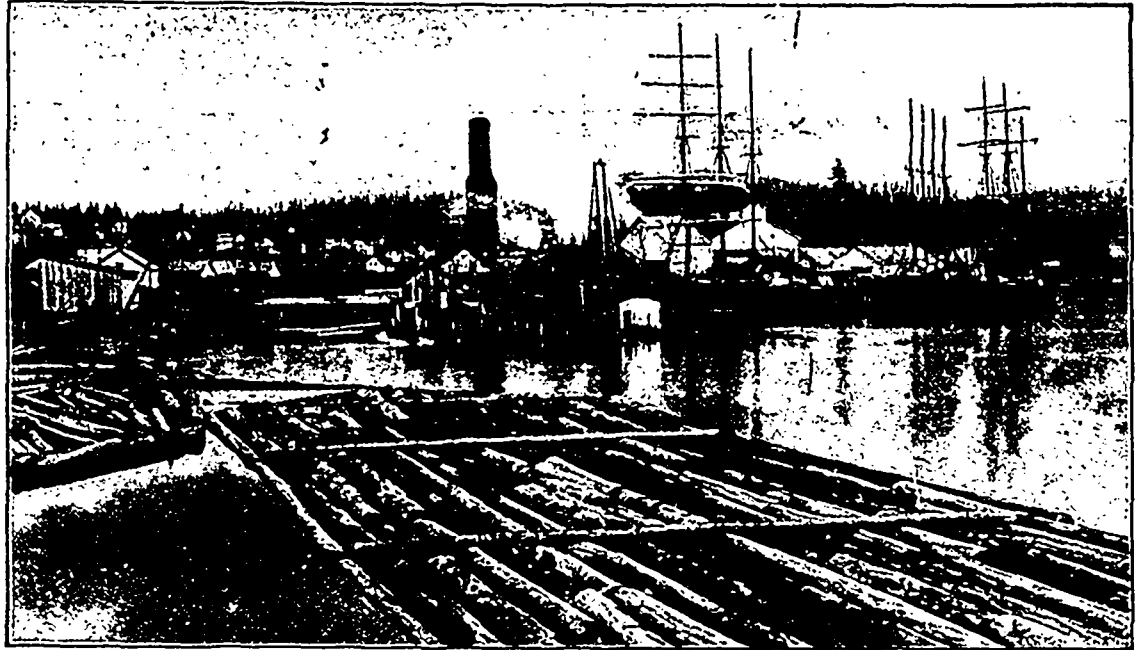
planers, conveyers, etc., the capacity being sixty thousand feet per day. The sash and door factory is a two-storey building, 60 x 90 feet. It has a full line of sash and door machinery, as well as lathes, shaper, band saw and all other machines usually found in a well appointed factory. In connection with the mill Mr. Haslam controls over four hundred million feet of standing

large share of their output. Ontario and Quebec are also good customers, and even the Maritime provinces find it to their advantage to purchase certain kinds of timber products from this company.

The shipping facilities of the firm are excellent. Lumber carrying vessels of the largest capacity take loads at their docks for foreign ports, and



MR. J. A. SAYWARD.



BRUNETTE SAW MILL COMPANY—MILLS AT NEW WESTMINSTER.

logging camps with steam and horse teams, and employs a tug for towing the logs to the mill. A portrait of Mr. Sayward is presented herewith.



NANAIMO SAW MILL AND SASH AND DOOR FACTORY.

The Nanaimo saw mill and sash and door factory at Nanaimo, B.C., is owned and managed by Mr. Albert Haslam. The mill is a new one

timber, chiefly fir and cedar. Mr. Haslam has in the past depended to a large extent upon the local market, but erected his new mill now in operation with the intention of engaging in the foreign trade.

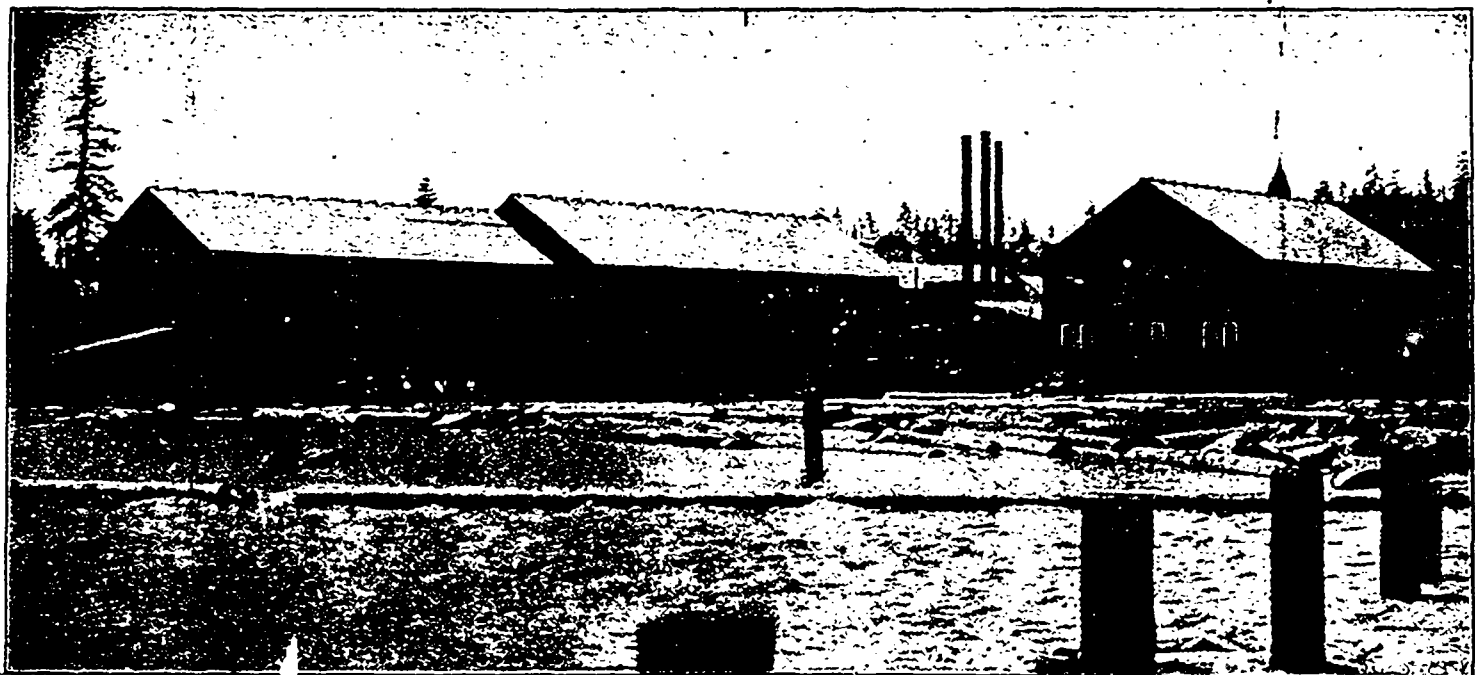


THE BRUNETTE SAW MILL COMPANY.

The plant of the above company is situated at Sapperton, within the corporation limits of the

Canadian Pacific Railway runs through their shipping yard.

The present mill was built in 1895—a fire on the 3rd of July of that year having destroyed their large new mill, in the midst of a very busy season. The capacity of the mill is 100,000 feet per day. Advantage was taken, in rebuilding, to introduce all the most modern improvements, and the mill is now, without doubt, one of the



NANAIMO SAW MILL AND SASH AND DOOR FACTORY.

just completed, and is situated on Nanaimo harbor, one of the best harbors on the Pacific coast. The main mill building is 220 feet by 50 feet and two stories high. It is equipped with the most improved machinery suitable for the heavy timber of the west. The machinery consists of circular saws, both top and bottom; circular re-saw machine, gang edger, trimmers,

city of New Westminster. These mills have been in successful operation since the early seventies, and have done much to introduce British Columbia timber and lumber into the various foreign markets, where it is now in such large demand. Their principal business, however, is local and Canadian, the rapidly growing provinces of Manitoba, Assiniboia, Alberta and Saskatchewan taking a

best equipped in the province. The company obtains its chief supply of logs from the islands and mainland coast lying to the east of Vancouver island. The logs are towed in rafts, or booms, of 300 M. to 1000 M. feet B. M., direct from the camps to the mill without breaking bulk. This is found to be a convenient, safe and inexpensive method of

transporting the logs, as the land-locked waters of the Strait of Georgia and the numerous inlets are safe for small craft and for towing. Deep water prevails almost everywhere in these waters, and many snug harbors are to be found for shelter and for holding logs until taken away by the towing steamers.

Three-fourths of the company's cut is Douglas fir, which is the chief wood exported. It is extensively used in Australia and China, for house and ship-building and for mining props. Douglas fir spars are now exported to all the principal ship-building countries; and for decking, this wood is meeting with a great demand. It is also much used in Canada and the United States for car building and for railroad bridges, where great strength is required. It is also rapidly taking the place of pine throughout north-western Canada for house flooring, siding, ceiling, stepping and finish.

Several million feet of white spruce are also

years occupied a responsible position in the employ of Mr. J. R. Booth, of Ottawa, is president, and Mr. L. A. Lewis, whose early home was in Dresden, Ont., is general manager of the company. A view of the mill is shown on the previous page.

* * *

BRITISH COLUMBIA MILLS, TIMBER AND TRADING COMPANY.

This corporation is the largest lumbering concern in the province of British Columbia, owning and operating the Hastings Saw Mill; the Royal City Planing Mills, Vancouver; and the Royal City Planing Mills, New Westminster. The largest of these is the Hastings Saw Mill admirably situated on the water front of Vancouver city, and of which a view is shown herewith. At this mill the principle export business of the company is carried on, and at its wharves may be seen vessels loading for all quarters of the

BRITISH COLUMBIA MILLS, TIMBER & TRADING CO.—HASTINGS MILLS.

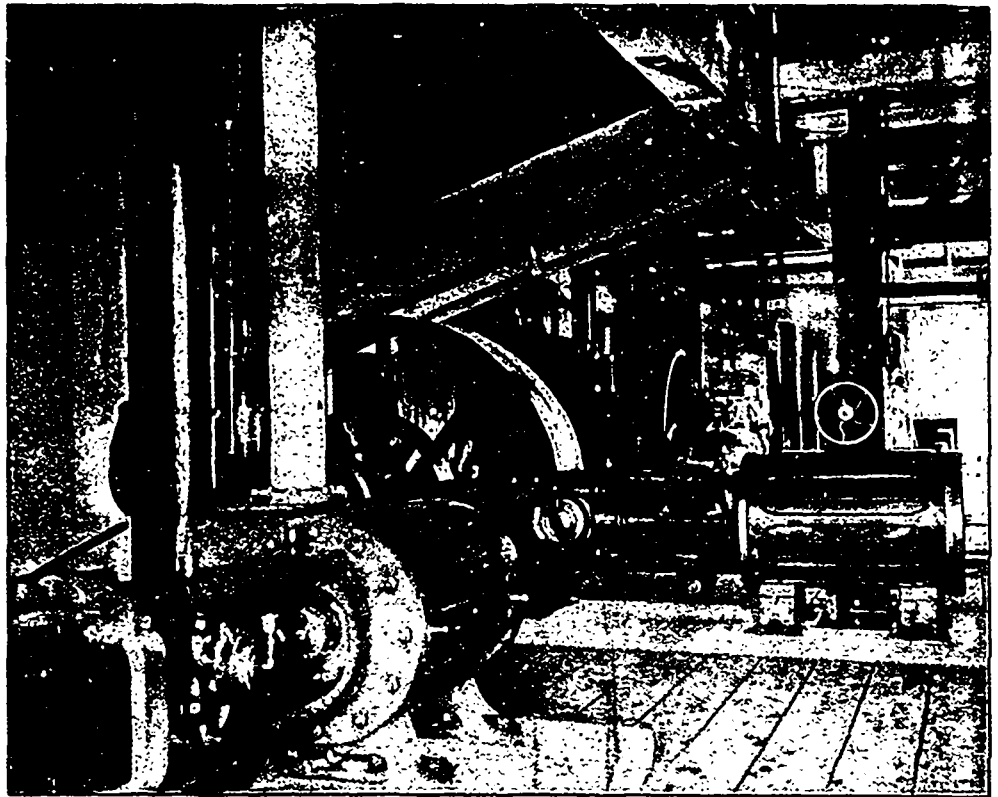


FIG. 1.—“HAMILTON ENGINES.”

cut by this mill yearly. This is chiefly used for box making on the premises, but the clear spruce strips and squares are much in demand for house finish, veranda posts, etc., also for wagon boxes and for oars. This wood would answer admirably for ladders, as it is light and the fibre is very tough.

The Brunette Saw Mill Company also hold extensive limits of red cedar, and their trade in this wood is steadily increasing. British Columbia cedar has many good features; it has very little tendency to shrink or swell with the changes in the weather, does not warp, and has an astonishing capacity for resisting decay. It weighs only about 60 per cent. of fir, is easily worked, and is much used in cabinet work, doors, windows, etc. When finished in oil it is very handsome, being of a dark reddish brown. It is by far the most valuable of British Columbia woods, but the shingle mills are making such inroads upon it that the quantity of clear red cedar to be had in a few years will be limited.

Mr. Hugh McDonald, who for a number of

globe, in all of which the company has customers and business connections.

The old Hastings saw mill built originally in 1865, at which time there was no the light of the city of Vancouver, was destroyed by fire about a year ago, but on the same site has arisen the new Hastings mill, of greater capacity and fitted with more modern machinery than the old one. This has just been completed, and began operations last month. When all the machinery is in operation the mill will have a capacity of 250,000 feet of lumber per day of ten hours, and in addition to the saw mill proper there are extensive dry kilns and a large planing mill, which are busily occupied in turning out all kinds of dressed lumber which is ready dried and prepared to go into any building. The complete equipment of machinery in the mill was supplied by the William Hamilton Manufacturing Company, of Peterboro', Ontario, through their Vancouver agency, and reflects much credit on the company.

Views of some of the machines are shown herewith. Figure 1 is a view of the engine room, which contains the following engines: One pair

of 20" x 24" "Hamilton" saw mill engines, coupled; these engines drive all machinery in the back end of the mill, including rolls, transfers, edgers, lath mill and bolter and planers; one engine, 24" x 30" driving band mills, and one engine 42" x 30" driving large double circulars and log haul up. All engines are fitted with shaft governors and run 600 feet piston motion, and are capable of developing 2,500 horse power.

Figure 2 shows the "Hamilton" Pacific coast band mill, of which there are three—one band

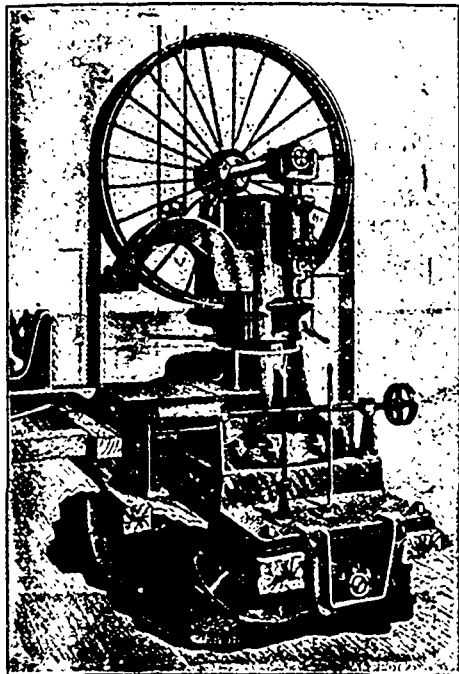


FIG. 2—"HAMILTON" PACIFIC COAST BAND MILL.

mill having 9 ft. wheels with 12" saws; one 8 ft. wheels with 12" saws, and one 6 ft. wheels with 8" saws. The latter will be used for re-sawing.

Figure 3 illustrates the Pacific coast gang edger. This is a very heavy machine, capable of sawing cants 60 inches wide and 8 inches thick; it has a variable feed from zero to 500 feet per minute.

Figures 4 and 5 are illustrations of the lath bolter, giving front and back view of same. This machine is a new design, is capable of handling

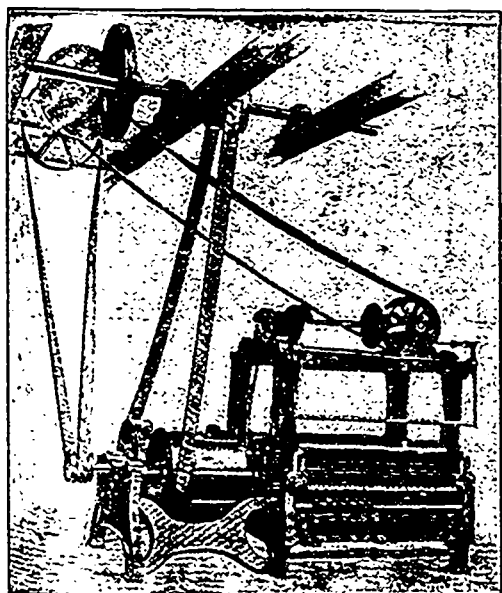


FIG. 3—"HAMILTON" PACIFIC COAST GANG EDGER.

bolts 8" thick, and is fitted with inserted tooth saws 24 inches in diameter. It is a very heavy machine, and is made extra strong for Pacific coast trade.

Sidings from the main line of the Canadian Pacific Railway traverse the mill yard, and afford the

required facilities for the large trade in this style of lumber which the company has with the Northwest territories and the eastern provinces. The shipments by rail, however, are not confined to lumber of such small dimensions, as it is a common thing to see timbers being loaded on cars, the lengths of which require two and sometimes three flat cars to carry them, that is, from 70 to 90 feet, and running in sizes from 12" to 36" square.

The excellence of the company's product is so well recognized that orders are received from the remotest eastern points, strange as it may seem, shipments are made to points in the province of Quebec, to Halifax, and even in the face of a hostile tariff to points on the Atlantic seaboard of the United States.

The Royal City Planing Mills, Vancouver, have a sawing capacity of 75,000 feet per day, and a planing mill capacity of 50,000 feet. There is also a large and perfectly appointed sash and door factory in which, in addition to doors and windows, mouldings, mantel pieces, and all kinds of finishing wood-work for interior fittings are turned out, of the most tasteful description. This mill is entirely occupied with local and eastern orders, and also has in operation a shingle mill. The shingles are made of British Columbia cedar and find a ready market as far east as Ontario. At this mill there is also a box factory turning out boxes of all sizes and descriptions.

The Royal City Planing Mills, New Westminster, have also sawing capacity of an equal amount as the Royal City Planing Mills, Vancouver, and is busily engaged in catering to the local and eastern trade, whilst occasionally taking a share in the foreign trade of the company by loading vessels for distant destinations. In connection with the sawing and planing operations, this mill operates a large box factory, having a capacity of 4,000 boxes per day, and supplies the greater portion of the boxes used by the salmon canning industry on the Fraser river.

The company have their own timber limits, and operate their own logging camps, at several of which railways of standard gauge have been put in for the conveyance of logs to the salt water, where they are made up into booms and taken hold of by the company's own tugs and towed to the different mills. In addition to the railway plant for the transportation of the logs, the company have thirteen logging engines employed in hauling the logs to the main roads.

The number of employees is over 1100, whose wages aggregate forty-five thousand dollars (\$45,000) per month.

Mr. F. A. McMullen, of South Maitland, N.S., purposes making improvements to his saw mill.

Messrs. H. V. Dewar, F. W. Dewar, W. M. Dewar and A. D. Herron, of St. George, N.B., and Daniel Gilmour, of Montreal, are applying for incorporation as John Dewar & Sons, Limited, for the purpose of carrying on the lumber business at St. George, N.B. The capital is \$80,000.

PACIFIC COAST LUMBER COMPANY.

The mills of the above company are located at an advantageous point on the Fraser river at New Westminster, and are designed for manufacturing red cedar lumber and shingles. The parties interested are a few Ontario lumbermen who conducted large lumbering operations for

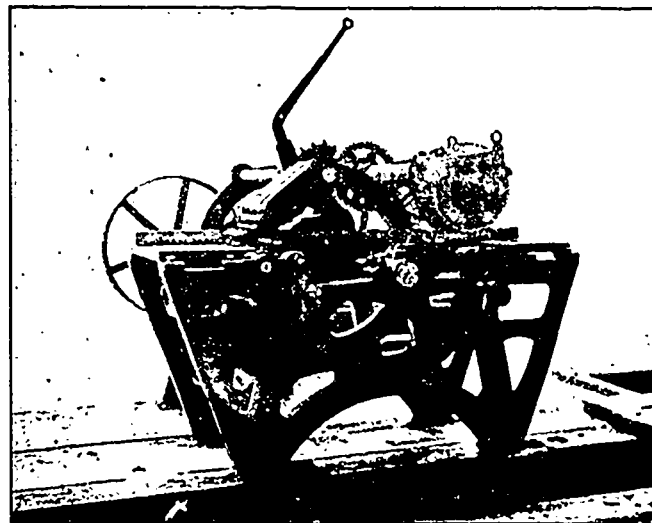


FIG. 4—"HAMILTON" LATH MILL, PACIFIC COAST PATTERN—FRONT VIEW.

many years in the east, the president being Mr. W. J. Sheppard, who is also president of the Georgian Bay Lumber Co., of Waubaushene, Ont. The manager is Mr. J. G. Scott, of New Westminster, who is also an Ontario man.

Up to the present this company has confined its operations to cedar lumber and shingles, and the business has seemingly outgrown its present well equipped little plant. Although operations are regularly conducted day and night, they are unable to keep pace with orders. This company has been doing a car trade, their markets being

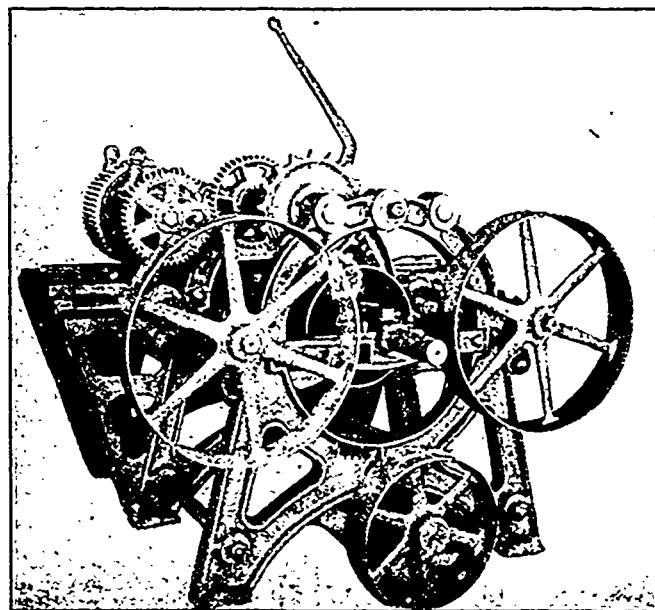


FIG. 5—"HAMILTON" LATH MILL—BACK VIEW.

principally in Ontario, Manitoba and the Northwest territories, and report a brisk and steadily growing demand. The cedar lumber shipped is usually in manufactured form such as ceiling, siding base, casing, mouldings, door stock, etc., and in Manitoba this firm's "Best Brand" of shingles is said to sell in preference to any other make, as their reputation for evenness of quality is now so well known by the builders and farmers throughout that country. After seeing the care

bestowed on making, sorting and packing, it can be easily understood that this reputation is well deserved.

Another specialty that this company makes and has the control of is "grained ceiling," the graining being done by a process somewhat similar to lithography. Very natural imitations of the various expensive hardwoods are made, the effect produced being quite equal to the wood imitated. For interior wall and ceiling finish this lumber is finding a good market.



OTHER MILLS.

There are within the province several other important saw mills, among which might be mentioned the following: E. H. Heaps & Company, Vancouver; The Victoria Lumber & Manufacturing Company, Chemainus, operating one of the most extensive mills in the province, under the management of Mr. E. J. Palmer; Canadian Pacific Lumber Company, Port Moody; North Pacific Lumber Company, of Vancouver, with mills at Barnet; Geo. Cassidy & Company, Vancouver; Robertson & Hackett, Vancouver; W. L. Tait & Son, Vancouver; Lemon, Gonnason & Company, Victoria; James Leigh & Sons, Victoria; Moodyville Land & Sawmill Company, Vancouver; Ross-McLaren Mills on Fraser river, near New Westminster; G. O. Buchanan, Kootenay Lake; Spicer Shingle Manufacturing Company, Vancouver; Hastings Shingle Manufacturing Company, Hastings; C. P. R. Mill at Coal Creek, on Crows Nest Pass Railway; Fred. Robertson, Revelstoke; Columbia River Lumber Company, of Golden, operating several mills; Taylor Mill Company, Victoria; Burrard Inlet Red Cedar Company, Port Moody; Muirhead & Mann, Victoria; Kootenay Lumber Company, Arrow Lake.

OBITUARY.

Messrs. Cant & Kemp, timber brokers, of Glasgow, Scotland, announce the death of their Mr. John Chas. Kemp, which took place on September 26th, at his residence, 7 Elmwood Terrace, Jordonhill.

ARCHIBALD MCNAIR.

In our last issue reference should have been made to the death of Mr. Archibald McNair, head of the Hastings Shingle Manufacturing Co., of Vancouver, B. C., which took place early in August. For nearly two years Mr. McNair had been suffering from a complication of ailments. He was born in Restigouche County, New Brunswick, in 1838, and was therefore in his 61st year. In his early years he travelled the seas. At 24 he was the captain of his own vessel. Later he abandoned sea life, and bought a flour-mill in Bonaventure, Quebec, where he settled down. Here Mr. McNair also built and operated a sawmill. Subsequently he disposed of both properties, and returned to his native province of New Brunswick. At Nash's Creek he again engaged in the manufacture of lumber. In 1891, with his family, he removed to Vancouver. Since then and up to the time of his death, he had been known and respected as the enterprising owner of the shingle mill at Hastings. His widow, one son and three daughters survive him.

HENRY BULMER, JR.

EARLY in September a despatch was received in Montreal announcing the death at Fort Selkirk, in the Yukon district, of Mr. Henry Bulmer, jr. Mr. Bulmer, it will be remembered, left Montreal in the spring of 1898 for the Yukon having accepted the position of manager for the Canadian Yukon Lumber Company. The climate there apparently agreed with him, but in April last he was stricken down with an attack of peritonitis. In July a recurrence of the disease set in, to which he succumbed on August 9th. The late Mr. Bulmer was the eldest son of Mr. Henry Bulmer, sr., of Montreal. For a number of years he was engaged as a lumber merchant in that city, where he was a general favorite for his many sterling qualities. He was a member of the Victoria Rifles and afterwards an officer of the Prince of Wales Rifles, in which he served during the Fenian Raid.

HON. E. J. PRICE.

At Wolfshild, Quebec city, on August 31st, there died Hon. E. J. Price, Senator for Laurentides division, and head of the extensive lumber firm of Price Bros. & Co. Although deceased had been in poor health for some time, the intelligence of his death came with much surprise.

It may be said of the late Mr. Price that he was the lumber king of the province of Quebec. He was the fifth son of the late W. Price, who was sent out to

Canada about the year 1810 on behalf of the Admiralty contractor, owing to the closing of the Baltic ports against Great Britain by Napoleon I, and erected the first saw mills at Chicoutimi and Tadoussac. After having completed the mission with which he had been entrusted, Mr. Price started in business at Quebec as a timber merchant, under the style of W. Price and Co. On the death of Mr. W. Price, the business was altered to Price, Bros. and Co., under which title it has been known ever since, the partners being the Hon. David Price, son of Mr. William Price, and his brother, the subject of this sketch. Since the death of the former, about fifteen years ago, the Hon. E. J. Price has been sole proprietor. The firm of Price Bros. & Co. are the largest spruce manufacturers in Canada, they having more than a dozen mills in the Saguenay valley and other parts of the province of Quebec. They are also large holders of timber limits in the Saguenay district. For many years Mr. Price had sole control of this enormous business, which has been largely developed by him. Each of the various mills was treated as a separate business, each being under the control of a manager who was responsible to Mr. Price. In addition Mr. Price was largely interested in a factory in Quebec for the manufacture of boxes, shooks, etc. The bulk of the goods manufactured by the firm of Price Bros. & Co. were marketed in Great Britain, although a considerable quantity was shipped each year to South America, the United States, the West Indies, and Australia.

Mr. Price had been in the habit of spending about six months of each year in Great Britain, his agents there being Messrs. Price & Pierce. He was a Senator of the Dominion government, was unmarried, and will be succeeded in business by his nephew, Mr. Wm. Price. He left a valuable estate.

JAMES TENNANT.

ONE of the best known lumber merchants in Ontario passed away on September 20th, in the person of Mr. James Tennant, head of the lumber firm of James



THE LATE JAMES TENNANT.

Tennant & Co., Toronto, death being due to typhoid fever. Deceased had spent nearly all his life in the lumber business. Born in Princeton, near Paris, Ont., in 1833, he at an early age started farming for himself on the old family homestead. At the age of 27 years he engaged in the lumber business with Sandford, Yale & Co., at Angus, Simcoe County, and remained with that firm for a number of years. Removing to Toronto he became associated with the then well-known firm of Christie, Kerr & Co., being with them for ten years as buyer. In that capacity he became known to almost every saw-mill owner in the province. Upon the failure of the firm of Christie, Kerr & Co., the business was taken over by deceased and his brother Walter, and conducted successfully for some years. Three years ago Walter Tennant died, since which time the business has been conducted entirely by the late James Tennant. The offices in Toronto are located at the foot of Bathurst street. In politics Mr. Tennant was a staunch Liberal, although never taking any active interest in municipal or provincial elections. He was an adherent of the Presbyterian church. In 1868 he married Miss Giles, daughter of the well-known real estate man of Rosedale. Four children survive him.

"WANTED AND FOR SALE."

Persons having for sale or wishing to purchase a particular lot of lumber, a mill property, timber limits, second hand machinery, etc., in fact, anything pertaining to lumbering operations, will find a buyer or seller, as the case may be, by placing an advertisement in the "Wanted and For Sale Department" of the CANADA LUMBERMAN Weekly Edition. Testimonials to the value of this department by those who have given it a trial state that the results of advertisements were frequently better than anticipated. The cost is comparatively small. Mill owners might, with profit to themselves, make use of this method of advertising their stock to a still greater extent.



"I predict that in ten years' time there will be more people in the Dominion west of the Great Lakes than in the east, and that Winnipeg will contain a population of 100,000 before five years will have passed away." These are the remarks of Mr. J. A. McRae, railway contractor, of Niagara Falls, Ont., who is interested in the Rat Portage Lumber Co. This company, he says, has doubled its output within the past five years, the lumber going exclusively to Manitoba and the North-West. The lumber produced this year by the Rat Portage Lumber Co. and the Keewatin Lumber Co. will reach seventy million feet, the average price of which is about \$15 per thousand. Answering a question as to the life of the log supply, Mr. McRae replied that there were logs enough in the Rainy River district to meet the demands of the several mills during the next twenty years. He had just returned from a visit as far west as Winnipeg and Brandon, and stated that he believed the total grain crop of the North-West would come close to 60,000,000 bushels.

I was privileged to meet in Toronto last month Mr. James Richardson, representing Messrs. Wm. Mallinson & Co., timber importers, of London, England. Mr. Richardson is one of the two partners in this well-known firm, and has visited the American continent periodically during the past eight years for the purpose of buying lumber. In his capacity as buyer, he has also visited nearly all the wood exporting countries in the world, and recently spent several months in India. It was no surprise, therefore, to find him thoroughly posted on trade matters and a most entertaining conversationalist. I learned that his firm import all kinds of timber, selling to builders, railway contractors, ship builders, etc. So far as Canada is concerned, they have confined their purchases chiefly to hardwood, buying in car-load lots. They have purchased a considerable quantity of Canadian birch and elm, and while here it was Mr. Richardson's intention to arrange for some shipments of ash. Speaking of hardwoods, Mr. Richardson remarked that they found it possible to obtain Austrian oak at a low price, for the reason that the manufacturers in that country possessed facilities for utilizing every particle of timber. In this way they are enabled to sell their lumber at a moderate cost. This, in his opinion, was the great necessity of the lumber trade of Canada. When prices in Canada reach a certain figure it becomes impossible to compete in Great Britain with woods from other countries. In this respect Great Britain is peculiarly situated, having the entire continent as well as America from which to draw her supplies. Spruce, for instance, competes with white wood, and prices can only go so high. Unfortunately, Mr. Richardson says, the quality of American pine is deteriorating. Asked as to the reliability of auction sale prices, Mr. Richardson stated that in the case of mahogany, the greater bulk was sold in that manner, and therefore it was these prices which governed the market; not with spruce and pine, as stocks offered for sale at auction were usually of a quality too inferior to be included in the regular contract of the manufacturer, or were under-sizes. It is Mr. Richardson's opinion that Canada can secure a larger share of the wood trade of Great Britain and that she can hold it if her manufacturers fulfill their contracts to the letter, which something greatly prized by importers.

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SUPPLEMENT

SAWDUST VALUABLE.

The accompanying illustration represents a part of an apparatus recently perfected for carrying out a process or processes that converts sawdust and refuse lumber into products of commercial value. The products so manufactured are extensively used by manufacturers of white lead, paints, oils and varnishes, by calico and wall-paper printers, by rubber manufacturers, by iron and steel manufacturers, and by all governments of civilized countries for treating and preserving foundation timber, bridge timbers, railroad ties and various kinds of work of a permanent nature. The products therefore have practically an unlimited demand.

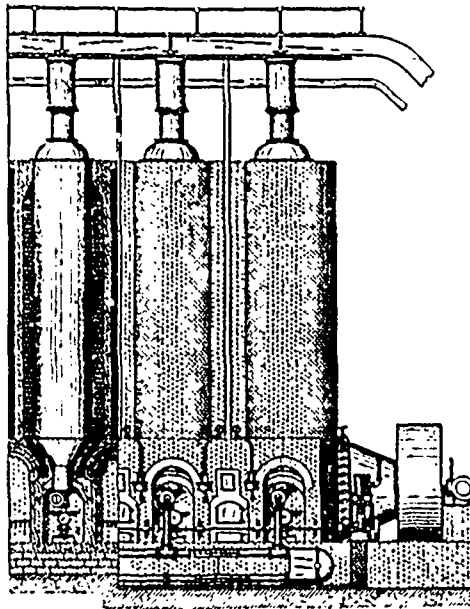
A ton of sawdust or refuse wood treated by these processes will yield products worth from three to five dollars above the cost of manufacture.

The apparatus and processes have been invented and perfected by Mr. Victor Lee Emerson, M. & C. E., formerly of Maryland, now of Ottawa, Canada, and his able associates, and have been developed with the view of not only enabling the manufacturers of lumber to receive a handsome profit from what has been comparatively a waste material, but with a further view of making the apparatus automatic and easily operated, so as to dispense entirely with skilled or hand labor and at the same time be continuous and self-contained.

The carbon is produced in three distinct types, in a form as fuel, for gas making and for metal smelting. The carbon being of a superior quality, is specially adapted for smelting purposes, and will be of great benefit to the iron industry of Canada which has so long been handicapped owing to the scarcity in high priced coke.

Many difficulties as first met with in carrying out the process have been overcome, such as the extraction of about fifty per cent of water from timbers that have been water-soaked, as well as refining the products in a simplified and cheap manner.

It might be said that the apparatus and processes work so automatically that after the sawdust or refuse is conveyed to the admission end of the apparatus it passes through the various chemical treatments and changes in a continuous manner until it is delivered at the several exits in a



APPARATUS FOR UTILIZING SAWDUST.

variety of commercial forms, requiring practically but little attention.

Heretofore it has required skilled chemists, expensive plant and a large amount of hard labor to manufacture these products, and the operation was practically limited to certain kinds of wood not carrying resins, such woods being expensive. Even under the old system where such large expenditures were necessary, the great market demand for the products and fancy prices received has made the industry a successful one.

By this new process the cost of the plant has been so reduced and the conditions under which the processes are to be supplied to responsible lumbermen, are such as will enable anyone well located and making 25 or more tons of sawdust per day to install a suitable sized plant.

A sufficient number of plants will be sold and processes leased to responsible parties in the United States, Canada and Europe to meet as near as possible the present market demands for the product. The entire output of such plants will be purchased and a suitable percentage of the products will be received in payment for the use of the processes.

A number of prominent manufacturers have adapted the system and plants will be erected as soon as machinery can be constructed.

Mr. Emerson is a well known inventor, having brought out a number of important inventions both chemical and mechanical that have been well received by the public and are in practical use. Aided by his able associates the business should prove a great success and become an important industry to Canada and lumber manufacturing countries, and especially those where there is a scarcity of coke for smelting purposes as is the case in Canada. Those interested may receive further information by addressing Mr. Emerson at Ottawa, Canada, or No. 420 Market Street, Harrisburg, Pa.

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Good ground Coffee 18c. per lb.; good Japan Tea 13c. per lb.; good black Pepperor Mustard 12c. per lb.

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THE NEWS.

CANADA.

—Mr. J. D. Shier, of Bracebridge, Ont., has just put in a new log carriage.

—A new shingle mill has been started at Fort William, Ont., by Mr. S. Stevens.

—Mr. F. H. Hale is about to erect a saw mill at Plaster Rock, near Andover, N.B.

—Mr. Ewan Dingwall has made extensive improvements to his saw mill at Williamstown, Ont.

—Messrs. Gillespie & Grier have purchased the planing mill of Argue & Son, at Parry Sound, Ont.

—The match factory of Mr. Dubord at Beauport, Que., was partially destroyed by fire last month.

—The factory of the Ontario Box Co., Hamilton, Ont., which was burned recently, is being rebuilt.

—Mr. Jacob Binyay, of Yarmouth, N.S., is offering for sale his sawmill and timber lands at Hill Grove.

—A new rotary saw mill is being erected at South Maitland, Ont., by L. R. Rettie & Co., of Truro.

—A new saw mill is about to be put in operation at Meech's Lake, Ont., by Messrs. Donnelly & Drum.

—The Canadian Pacific Lumber Co., of Port Moody, B.C., has opened a lumber yard at Vancouver, B.C.

—It is rumored that Reid Bros., of Hepworth, Ont., will probably erect a large saw mill at Southampton.

—An electric light plant has been installed in the saw mill of McLaurin & McLaren, at East Templeton, Que.

—It is stated that Mr. C. McGibbon, of Penetanguishene, Ont., purposes putting a band saw in his mill this winter.

—The saw and planing mill of W. C. Edwards and Co., at Ottawa Ont. was recently damaged by fire to the extent of \$7,000.

—Mr. W. Maddock, of Hupstville, Ont., shipped another car load of broom handles to Glasgow, Scotland, a fortnight ago.

—The contract for show cases for the Dominion exhibit at the Paris Exposition has been given to Messrs. W. C. Edwards & Co., of Ottawa.

—The Turner & Fisher Lumber Company have opened an office at Trout Creek, Ont., in order to facilitate the transactions of their business.

—Mr. A. E. Young is building a sash and door factory at Columbia, B. C. He will also manufacture all kinds of mouldings and furnishings.

—Mr. E. Spraggett has built a new sawmill on the main Kettle river, half a mile from Grand Forks, B. C. The capacity is 30,000 feet per day.

—The Chemanius Lumber and Manufacturing Co. have given a free site and the necessary lumber for a general hospital to be built at Chemanius, B. C.

—The North Pacific Lumber Co., of Vancouver, B. C., have purchased a 24 x 30 timber sizer of the Berlin make, said to be the largest machine ever made.

—The exhibits for the Paris Exposition must be in Montreal by November 2nd, in order to be shipped by the Dominion government steamer Stanley.

—Mr. S. Rogers, of Cedarville, Ont., is offering for sale his saw, shingle and chopping mill at that place, together with about 300 acres of timber land.

—Messrs. J. L. Reaume & Co., of Essex, Ont. are manufacturing staves from sycamore. They have added considerably to their holdings of timber lands.

—The Ottawa Saw Works Company have made a proposition to the City Council of Hull, Que., to remove to that city and erect a factory to cost about \$30,000.

—In common with all other articles of manufacture, axes have advanced considerably of late. It is said that axes that formerly sold at \$4.75 are now quoted at \$6 per dozen.

—It is reported that Mr. John A. Christie, formerly manager of the Assiniboine Lumber Co., at Brandon, Man., will remove to Skagway, where he has purchased a saw mill.

—The sawmill of E. G. Thomson & Co., near Cascade, B. C., has been purchased by Mr. D. Bailey, of Columbia. Mr. Bailey has removed the mill to Gilpin's ranch, on Kettle river.

—The Department of Interior at Ottawa invites tenders up to October 9th for a license to cut timber on a berth

of 39 square miles on Lobstick Creek, in the district of Alberta, N.W.T.

—The Canadian Office and School Furniture Co., of Preston, Ont., are about to engage in the Australian trade, having arranged with a large wholesale dealer at Brisbane to handle their goods.

—The Parry Sound Lumber Co. are overhauling their saw mill at Parry Sound, Ont., and purpose operating it next year. New tramways will be built. This season their shingle mill only was operated.

—Messrs. John Harrison & Son, of Owen Sound, Ont., are just completing a large extension to their planing mill. Mr. J. S. Findlay, of same place, announces his intention to increase the capacity of his mill.

—Mr. O. Kately, formerly with the Puget Mill Co. at Port Gamble, Wash. has succeeded to position of superintendent of the Hastings mill at Vancouver. This position was formerly held by Mr. W. D. Mearne.

—Messrs. H. A. Wilder & Co., of Montreal, are interested in securing a site in the eastern townships of Quebec on which to build a large furniture factory. It is necessary that there should be a good supply of hardwood timber.

—The North Pacific Lumber Co., of which Mr. J. M. Portas, formerly of Ottawa, is manager, expect to have their mill at Barnett in operation this month, after having been idle for a few years. It will cut 100,000 feet per day.

—The statement is made that the Capital Box Co., of Tacoma, Wash., will erect a box factory at New Westminster, B. C., costing about \$10,000 and employing 75 hands. This company have lately been shipping a considerable quantity of their goods into British Columbia.

—A barque has loaded box shooks at St. John, N.B. for Glasgow. This is the first full cargo of shooks ever sent from that port, it being supplied by Donald Fraser & Sons, of Fredericton. This firm have just completed a new mill at Lake Temiscouata, near the headwaters of the St. John.

—A lumber camp near Chatham, N.B., owned by Hon. J. B. Snowball, was burned recently. It contained peavies and other lumbering tools, besides a large quantity of camp supplies. There were six buildings in the group, all but the one, containing the sleds and rigging, having been burned.

—A number of lumbermen, including Messrs. James Playfair, Geo. Chew, and D. L. White, jr., and W. J. Shepard, W. H. F. Russell, and W. J. Lovering, of the township of Tay, are seeking incorporation as the Midland Power Co., Midland, Ont., for the purpose of supplying light, heat and power.

—The mill of the Digby Manufacturing Co. at Digby, N.S. which was burned last month, contained a rotary, a complete equipment of planing and moulding machinery, and a printing press for stamping wood. Although the loss is only partially covered by insurance, it is understood to be Mr. Wood's intention to rebuild.

—On the evening of September 17th burglars entered the office of McArthur & Son, lumber merchants, South Lancaster, Ont., blew open the safe and secured promissory notes to the amount of \$15,000. As yet no clue as to the parties has been obtained, but the firm are offering a reward for the return of the stolen notes.

—Mr. Thomas Southworth, chief of the Forestry Department of Ontario, draws attention to the increasing use of wood for street paving purposes in England. He does not see any reason why some of the coarser varieties of Ontario woods cannot be used in connection with street paving. For example, the jack pine of Ontario, he thinks, is far superior to the Baltic or Norway timber, being a heavier, stronger and denser wood. Mr. Southworth is of opinion that it would be an excellent thing to test the durability of jack pine as street paving material by laying a quantity of it on some Toronto thoroughfare as an experiment.

—The E. B. Eddy Co., of Hull, Que., are building new kilns for the drying of lumber used in the manufacture of tubs, pails, matches, etc. The wood will be treated by hot air driven through the kilns through flames and supplied by a system of steam fans. The arrangement will be such that the hottest air will act on the wood containing the most moisture. When the wood is partly seasoned it will be placed higher up in the kiln where the remaining moisture will be driven out, while the fibre and color of the wood under treatment will not be affected. The kilns will be of two styles, vertical and horizontal, and will cost in the neighborhood of \$15,000.

The employees of McLachlan Bros., sawmill at Am prior, Ont., were given a free excursion to the Ottawa Fair, the firm providing them with free transportation, street car tickets and admission to the Fair grounds. The employees and their families numbered 1,275, and were carried by sixteen coaches. The outing was given on account of the success which McLachlan Bros. have met with in their operations and as an acknowledgement of the part played by the employees, who fully appreciated the kindness. McLachlan Bros. operate four mills, two steam and two water power. Their annual cut is about 15,000,000 feet and the yards cover an area of 200 acres.

FOREIGN.

The United States Department of Agriculture is preparing for the Paris Exposition a history of forestry in that country, including an account of the efforts of private land owners to apply the principle of forestry. The work is in charge of M. Gifford Pinchot.

—An effort is being made to organize a company for establishing a modern sawmill on the American plan at Wahu, China. It is said that Li Hung Chang has signified his willingness to take stock to the extent of \$2,000. In the Celestial empire there are no up-to-date sawmills.

—The Swan-Donogh Lumber Co., of North Tonawanda, N.Y., have recently acquired the planing mill and box factory of Calkins & Co., and are using it in connection with their lumber business. The purchase includes one of the largest planing mills in the Tonawandas, a box factory and the real estate on which both are located, a dry kiln, four shavin' presses, lime kiln with stock, 225 trucks, about 2,000,000 feet of lumber, yards and docks, two lighters, two lumber sheds and two offices. The planing mill is splendidly equipped, and Canadian dealers shipping lumber across the line to be dressed at the border may find it to their advantage to avail themselves of the facilities possessed by the Swan-Donogh Company for handling this trade.

—During the fiscal year ending June 30, the United States exported the following timber products, compared with year preceding: Sawn timber, 416,448,000 feet, against 338,375,000; hewn timber, 4,796,638 cubic feet, against 5,489,714; logs and other timber, in value, \$3,262,389, against \$3,189,829; boards, deals and plank, 973,064,000 feet, against 790,659,000; joists and scantling, 34,394,000 feet, against 35,610,000; shingles, 75,734,000, against 50,524,000; staves, 44,325,545, against 54,142,759; all other lumber, in value, \$3,081,295, against \$3,256,880. The total value of the exports of wood and manufactures thereof for the year amounted to \$41,679,416, against \$37,513,252 in 1896 and \$39,624,800 in 1897. The total exports of lumber for the year from the United States was, in round numbers, \$1,904,391,000 feet.

CASUALTIES.

—F. Gagnon, a lad of fifteen years, was killed in Gilmour & Hughson's mill at Hull by being caught in the shafting.

—F. Capp, of Ottawa, while working in the woods on Black River, for W. C. Edwards & Co., had his left leg broken by a falling tree.

—Wm. McCollum, a well-known logger, was crushed to death by a log while getting out timber at Dover Point, B. C., for Tait's mill at Vancouver.

—Harry Dooley, a mill hand at J. R. Booth's mill at Ottawa, was caught between two rolls and drawn in front of a large circular saw, being mangled in such a manner that he died shortly afterwards.

—While loading cars at McLaurin & McLaren's mill at East Templeton, Que., Joseph Bertrand was crushed between one of the cars and a pile of lumber which fell against him. His nose, collar bone and jaw bone were broken and other injuries sustained.

—Angus McDonald was employed at the slab saw in J. D. Carew's saw mill at Lindsay. Accidentally he fell against the saw, which cut almost half way through the left leg below the knee. As he endeavored to regain his footing the saw caught his left hip and sheared off a large portion of his leg. McDonald will recover.

—As a three inch deal was being edged in Gillies Bros' saw mill at Braeside, Ont., it stuck in the saw. An employee, Chas. Reid, endeavored to overcome the difficulty by moving the adjustable saw, but just as this was done a piece of edging flew back and struck him over the heart, resulting in his death in a few minutes.

LUBRICATION OF LEATHER BELTS.

The consumption of oils and greases for the lubrication of leather belts is much larger than many suppose. There are, of course, a number of special belting compounds which are used for the dressing of leather belts; but most of the manufacturing plants and power consumers adhere to the old way of caring for the belts, which consists in cleaning them at intervals with grease and oil, tallow or the like, then allowing the belts to stand until the lubricants have been absorbed. Belts which are run in dye houses, bleacheries, steam laundries and places where the air is moist do not get dry enough to require lubrication. But belting in wood working, metal working, shoe manufacturing, flour and similar establishments is more or less subjected to the dry, dust-laden atmosphere of the rooms, and in time becomes harsh, dry and stiff.

A little oil, grease or similar substance may be used to advantage in restoring the pliability of the leather. The trouble is that some men use too much of the lubricant. If the oil or grease is flowed all over belt and is not given time to impregnate the fibre, the belt will lose its grip on the pulley, and quickly run off. If, however, the softening stuffs are uniformly and lightly applied and given time to saturate the leather, the fiber will gradually assume a softer and more pliable condition, which will improve the driving qualities of the belt and avoid slipping.

But it is not always lack of a lubricant that causes a belt to slip and run to one side. If a belt is so arranged

so that the belt constantly slips. Lubrication will not help it. Procure a monkey wrench and set over the belt shifter so that the full width of the belt will run on the tight pulley, and the difficulty will be overcome. Or if the tight and loose pulleys are set so as to permit a space to exist between, the belt will sink down as at I, and, of course, produce slippage.

If the tendency is for the belt to take a side of the wheel, Fig. 4, out of line with the guide pins J of the shifter, much trouble will result. The strain coming on that side of the belt, the edge will be broken as at R and K, and probably the joint opened as at P. The remedy again is to level up the shaft and pulley.

Again, it may happen that a correctly adjusted belt and freely lubricated one slips at certain points. Then examine the splices. If the jointing of the belt is open, like that in Fig. 5, it may be seen that the slipping occurs here when the lace leather is riding the wheels. The only remedy is to draw up the lacings and close the butts of the belt, as in Fig. 6.—American Miller.

QUESTIONS ON STEAM ENGINE OPERATION.

A writer in Modern Machinery asks the following questions: 1. How shall I proceed in order to equalize the load on the two pistons of my compound engine, 16 and 30 inches in diameter respectively? At present the high pressure piston does much more work than the low pressure and I wish to remedy the evil. 2. What is meant by re-evaporation in the cylinder of a steam engine? 3. Is it a source of gain or loss in economy? 4. How can it be prevented? The answers given are as follows: 1. If you have an adjustable cut-off on your low pressure valve gear, shorten up the point of cut-off. This will increase the back pressure on the high-pressure piston, and raise the initial pressure on the low pressure, thus giving more expansion and a better distribution of the steam. If you have no cut-off on the low pressure valve-gear, or if it is not adjustable and you cannot have it made so, lower your boiler pressure and carefully note the effect. This will raise the terminal pressure in the high pressure cylinder, and send more steam to the low pressure? 2. There is always more or less water in the cylinder when running, either from a boiler that furnishes wet steam, from a steam pipe that is not well protected, or on account of initial condensation. After the cut-off has taken place the pressure falls rapidly, and if it is very low near the end of the stroke it so reduces the boiling point that the heat in the walls of the cylinder causes it to evaporate into steam again, but too late to be of any service? 3. It is a source of loss, because it takes heat from the cylinder without producing steam in time to be of value. The result is that when another charge is admitted, some of it is condensed, and this loss frequently is heavy, although often unsuspected by engineers. 4. Measures should be taken to furnish the cylinder with dry steam, it should be well lagged to prevent condensation, and as the pressure cannot fall too low unless the load is light and the cut-off short accordingly, the boiler pressure should be reduced until the terminal pressure is raised. If this is not practical on account of the necessity of maintaining a high pressure for other purposes, a reducing valve may be placed in the steam pipe. These changes will also increase the economy by reducing the loss from other sources.

ENGINEERING NOTES.

WATER HAMMER.—If steam be admitted at the top of a vessel partially filled with cold water, condensation will take place until the surface is somewhat heated, and this, in connection with a cloud which forms above the surface, will retard rapid condensation, so that in due time the full steam pressure can be maintained above water cold at the bottom. This phenomenon is not an infrequent occurrence in boilers in which the circulation is defective. It is therefore perfectly safe to heat up any vessels containing cold water, if the steam can be admitted from the top upon the surface of the water and so maintained.

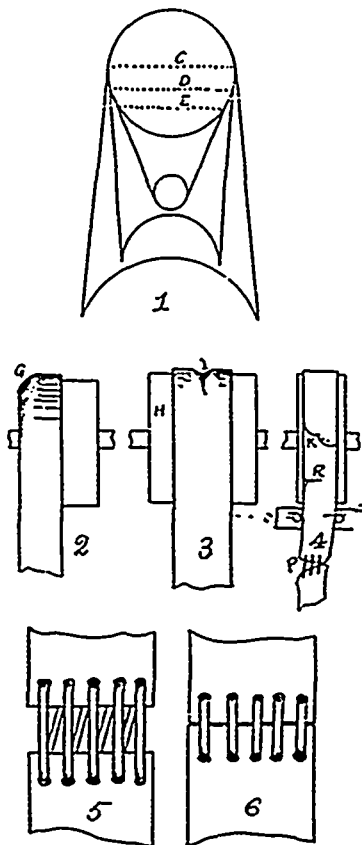
OIL TESTING.—A home-made oil tester for a shop consists of a shaft and balls with a shell between. The whole rests in half bearings, around which is put an iron strap, the tension being regulated by a set-bolt. The balls run in grooves. To test, apply the oil, run the shaft and if the bearing gives signs, upon cooling, that the lubricating oil is gumming, it is an indication that resins of

similar body-giving substance have been used. Resin oil, if properly distilled, does not produce this clogging. These bearings form pretty good oil testers, and then are sometimes found where they will generate heat with one oil and not with another. Such a bearing will determine the special merits of a machine oil.

The temperature of water in a boiler is the same as the temperature of the steam. Water cannot be heated higher than 212 degrees in the open air because it evaporates at that point; but in a closed vessel such as a boiler where there is pressure this tends to retard the boiling and the temperature of the water is always the same as that of steam.

BELTING.—The ultimate strength of ordinary bark-tanned single leather belting varies from 3000 to 5000 pounds per square inch of cross section. The thickness of single belting varies from 3/16 inch to 5/16 inch, and from 3/8 to 5/8 inch for double belting, and by taking the mean thickness we get the breaking stresses from 750 to 1250 pounds per inch of width for single belts and 1500 to 2500 pounds for double belts. The safe working tension should never exceed one-fifth of the strength of the joint, which is about one-third the above values. From this we find that by taking 1/5 of 1/3 of the breaking stress, or 1/15, the working tensions are, for single belting, 50 to 80 pounds, and for double belting, 100 to 160 pounds. Belts will run with the minimum of attention for many years, if the tensions do not exceed 50 pounds for single and 80 pounds for double belts per inch of width.—From "Smokeless Heat," by General Engineering Company.

When cold water comes in contact with hot plates, it cools them very rapidly and unevenly, the result being that the cooled part of the plate shrinks much faster than the rest, and this either cracks the plate or weakens it so much as to make it unsafe. The boiler may or may not explode, depending on the amount of injury done to the plate, and the steam pressure. A boiler explodes for the reason that some part is too weak for the pressure. The weakness may be due to a variety of causes, such as poor material, design, or workmanship, or to injury while in use. There is probably no case in which an explosion is due to gases generated in the boiler, although that theory is held by some. If the inside of the boiler is coated with scale, so as to prevent the heat from passing readily to the water, the plates may be cooler than the water if they are exposed to the air, or hotter if exposed to the fire; otherwise there will be very little difference in the temperatures.

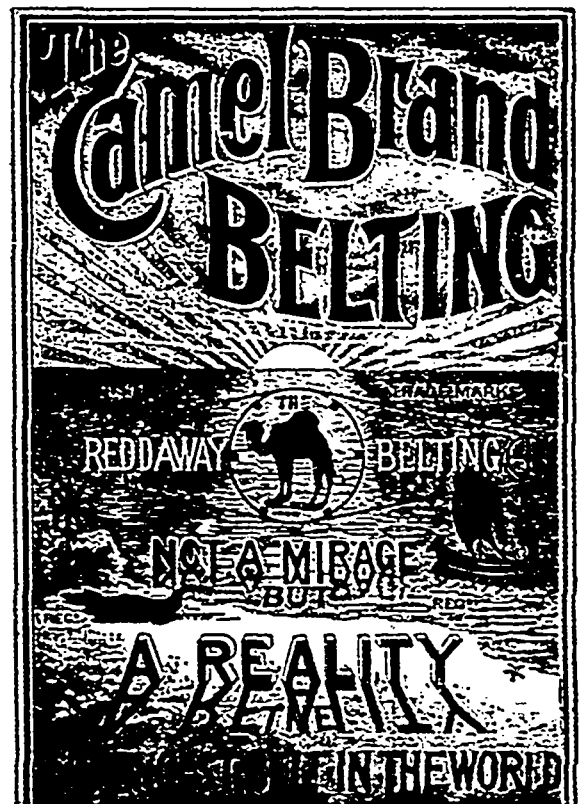


LUBRICATION OF LEATHER BELTS.

as to take in but a portion of the pulley, like C, Fig. 1, then much of the arc of contact is lost and the belt will slip with a load, even if the leather is properly lubricated. If the arc of contact is increased to that of D, a fuller grip is obtained of the contacting surfaces, and the belt will not be so likely to slip if it is properly limbered up with the right lubricants. If the arc of contact is brought to F, the bite is still more increased, and the danger of slipping averted, other conditions being right.

The most effectively lubricated leather belts will run to one side if the wheels are incorrectly set. This is illustrated in Fig. 2, in which a sample is given for the condition in which the writer finds very many pulleys. For some reason the local machinists are quick to decide that the belt itself, the lubricants, or anything but the pulley itself, is wrong. The tendency for a belt is to run to the high side of a pulley, except in case where the belt pulls down on the pulley, as in Fig. 2, when the belt rides the lowest edge at G. There is but one remedy, and that is to line up the shafting on which the pulley runs. Then the belt will take the centre of the wheel.

In Fig. 3 is a common case. A tight and loose pulley run together, and the belt shifter is adjusted so that but a fraction of the belt runs on the tight pulley. The re-



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WOOD PULP ~ DEPARTMENT

PULP MANUFACTURE IN BRITISH COLUMBIA.

It is a subject of wonder that no pulp mill has as yet been established in British Columbia. In that province there is to be found an abundant supply of spruce timber, somewhat similar to the spruce of eastern Canada which has become so widely known for its excellent pulp-producing qualities. While no pulp has been manufactured in British Columbia, shipments of this material have been made to Japan from Sault Ste. Marie, Ont., via Vancouver and other Pacific coast ports, and it is believed that a large trade will eventually be opened up with Japan, China and Australia. We are pleased to learn that an English syndicate is now considering the development of this trade, and that it is possible that calcium carbide will also be manufactured. The field seems to be a promising one.

WOODS FOR PULP MAKING.

With the expansion of the pulp industry, experiments are being made with a view to finding suitable woods other than spruce for pulp making. While we do not anticipate that spruce will be superseded by any other wood, the fact cannot be overlooked that the steps taken towards finding other suitable woods have met with some degree of success.

Much attention has been paid to cottonwood, which is now used quite extensively for pulp making in Missouri, Arkansas, Tennessee and other parts of the United States. It is said that cottonwood is even better adapted for the manufacture of pulp for making the higher grades of paper than is spruce.

Hemlock is steadily coming to the front as a pulp wood. The Central Paper Co. are about to establish a pulp mill at Muskegon, Mich., the raw material for which will be hemlock slabs

and edgings exclusively. This will be the first exclusive hemlock pulp mill in the United States. The raw material will be gathered up at the hemlock mills in the Muskegon district and brought by rail to that point, where a special patented process will be used for converting the wood into pulp. Other mills in Michigan and Wisconsin use hemlock as part of the raw material, one at Menominee using about 16,000 cords annually.

In connection with yellow pine, some experiments of much interest have taken place. A method is said to have been discovered by which the pitch can be extracted from long-leaf yellow pine so that the almost inexhaustible supply of that timber may be turned to the paper makers' use. A practical test of the method has been made, and a mill is being erected at Pensacola, Florida.

Perhaps the most important discovery has been that flax straw may be used for pulp making purposes, the product thus manufactured being superior, it is said, to that made from the best pulp woods. According to report, the Lloyds, of London, Eng., purpose establishing a mill at Niagara Falls, N. Y., with the intention of using flax straw as the raw material.

B. Mooney & Sons, of St. John, N. B., have taken the contract of building the new pulp mill of the Cushing Sulphite Fibre Co., near that city. The contract for boilers has been awarded to James Fleming & Son, of St. John. Work on the building has been commenced, and it is hoped to have the plant in operation by next spring.

It is rumored that Mr. Haggin, of New York, and his associates, have inspected water powers on the Great Northern Railway in Quebec, and that it is the intention to form a company for the manufacture of pulp and calcium carbide on an extensive scale. It is further stated that Mr. Haggin has lately sold large copper mines in the west for a considerable sum.

HISTORY OF PULP AND PAPER MAKING.

THOUGH paper made from vegetable products was in use many centuries before the Christian era, it is barely a hundred years since an adequate machine for making paper on an extensive scale was devised. The name of the inventor is forgotten; and though his ingenious device has been exploited, and his earliest machine altered and improved by daring plagiarists, there are comparatively few to whom the name of Louis Robert is familiar. Yet it was he who laid the foundation of an industry that has now swelled to gigantic proportions, and has contributed largely to the civilization of the world.

Louis Robert was a young clerk engaged in Francois Didot's paper-mill in Paris, France. Though not a trained mechanic, his tastes lay in the direction of mechanical contrivances, and he was struck by the circumstance that, while improvements in machinery were being introduced in nearly every other industry, paper-making was being conducted on the antiquated lines that had been followed for centuries. The process was tedious and uncertain, for if the workman who took the pulp from the vat on to the mould had not a steady hand, the paper was sure to be of unequal thickness. Robert's first purpose was to abolish the human moulder, and to substitute an adjustable machine which could be easily regulated. Having drawn out the plans of his proposed machine, he consulted with Didot, and ultimately the working out of Robert's idea was committed to the charge of the famous machinist, Foudrinier, by whom the first paper machine of this kind was constructed. In 1798 Didot had one of these machines working in his paper-mill. The unsettled state of France at that time prevented the development of industry; and in an evil moment Robert was induced to join with Foudrinier in a project for introducing the new machine into England. Ground was acquired in Hertfordshire, and in 1804 an extensive paper-mill was built there. This venture proved a complete failure, terminating in bankruptcy. Foudrinier returned to France, where he devoted himself to making paper machines for German and English manufacturers. The fate of Robert has not been recorded. It is certain that he never received the fortune to which he was entitled for his invention.

The principal changes in the making of paper have had reference to the adoption of substances for the manufacture of pulp, rather than to the manipulation of the pulp after it was formed. And here it may be mentioned as a curious fact that the modern idea of using wood for pulp-making is merely a revival of the oldest method of making paper known in history. It is stated that twenty-five centuries ago the Chinese used vegetable pulp for making paper, taking the down of the cotton plant as the chief ingredient. A similar method was followed in Japan, and seems to have made its way into India and Persia at a very early date. It has been proved beyond dispute that some of the ancient Egyptian

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manuscripts were written upon paper made from a vegetable paste, entirely different in composition from papyrus, which was the inner bark of the cyperaceous shrub called papyrus antiquorum.

The use of rags for the making of pulp dates from the close of the fourteenth century. The first mill for the manufacture of paper of this kind was established at Nuremberg in 1390; and shortly after that date similar mills were erected at Essonnes and Troyes. The rags used in Germany were chiefly linen, thus retaining the old idea of vegetable pulp; but in France, and afterwards in England, woollen rags were preferred. The principal French mills were in Auvergne and Normandy. When the Edict of Nantes was evoked, many of the workmen engaged in these mills fled to England and Holland, and thus it happened that when the Elzevir Press was in existence, paper was provided of a kind not before known in the Low Countries. A century before that time (in 1588) a German, jeweller to Queen Elizabeth, founded the first paper-mill in England, at Deptford; but the French and Dutch paper was preferred to the native manufacture, and was largely imported.

In the time of Cardinal Mazarin's supremacy (1641-1664), an attempt was made to revert to the old vegetable paper, a peculiar transparent paper being devised for the purpose of teaching children to write and draw from printed examples. The plan was not successful, nor was the similar effort in 1770 to reintroduce paper made from cotton pulp. When the Marquis de Villette, the friend of Voltaire, published his works in 1786, he

caused them to be printed on paper made from the marsh-mallow; and at the end of his book he gave specimen pages of different kinds of paper made from twenty other substances. Louis Robbert, the inventor of the paper machine, re-discovered in 1796 the secret of the Elzevir paper, and produced successful examples of it at Didot's mill at Essonnes. In 1802 the Dutch paper-maker Koops brought out his famous "straw-paper," though he had been anticipated by the Marquis de Villette twenty years before. In 1840 M. Julien proposed that Chinese bamboo should be used in making pulp, and though some of the manufacturers took up the idea, it was found to be too expensive; and the attempt to substitute rose-fibres proved unsuccessful. Modern paper-makers use a great variety of substances for making pulp. The most notable change in recent times is the use of wood-pulp for paper-making. Nearly all the daily newspapers are printed on paper of this description, and the method is vaunted as a brilliant modern discovery. And yet it is only a revival and modification of the plan pursued in China hundreds of years before the birth of Christ.—Commercial Gazette.

PULP NOTES.

The capital stock of the Laurentide Pulp Co., Grand Mere, Que., has been increased to \$1,600,000.

The Blind River Lumber Co. are offering for sale a valuable water power on the Blind river in Algoma, which is said to be a very desirable site for a pulp mill.

It is stated to be the intention of the International Paper Co. to enlarge their wood preparing mill at Three Rivers, Que., by installing from 20 to 25 barkers, and by remodelling the plant

generally. This property was formerly owned by the Glen Falls Paper Co.

The largest cargo of wood pulp ever landed in England arrived there recently on the steamer Hatasu, from Quebec. It consisted of 37,700 bales, of a total weight of 4,712 tons.

Mr. C. W. Morrison, of Brooklyn, N.Y., spent some time in Ottawa last month negotiating with Gilmour & Hughson for the purchase of 3,000 miles of spruce limits situated on the Gatineau river. He inspected the water powers at Ironsides and Chelsea, it being the announced intention of the company which he represents to build a pulp mill in Canada with a capacity of over 300 tons per day.

The Riordan Pulp Co. have put in operation their new pulp mill at Hawkesbury, Ont. This mill will manufacture pulp for the finest book paper, principally for the United States. The mill of the above company at Merritt will continue to make pulp for news and other cheap paper. Three digestors for the Hawkesbury mill were manufactured by the Polson Iron Works, Toronto, and three were purchased in Detroit.

The International Paper Company is gradually extending its foreign business, having recently established a Japanese branch. Mr. Shizuo Kando, who six years ago was the first to introduce American paper direct into Japan, has been selected as manager. He will make Tokyo his headquarters, and will establish a branch office at Osaka. These two cities, about 1,000 miles apart, are to Japan what New York and Chicago are to the United States.

As we go to press \$500,000 of stock in the Sissiboo Pulp & Paper Co. is being offered to the public. The prospectus of the company gives the details of its proposed operations, which are to be carried on at Sissiboo Falls, near Weymouth, N.S. An established plant is to be taken over, together with 17,000 acres of land, well timbered with spruce. The company has also acquired the only available wharf property on the Sissiboo river at Weymouth Bridge. The directors of the company include some of Montreal's prominent business men, and no difficulty is likely to be experienced in disposing of the stock.

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PULP AND PAPER MILL MACHINERY.

CONTRACTORS FOR COMPLETE EQUIPMENT OF

GROUND WOOD, SODA or SULPHITE PULP MILLS.

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OUR CROCKER TURBINE PLANTS are driving some of the best mills in the Dominion. Write for Circulars and Prices.



THE PORT HENRY PULP GRINDER.

With latest improvements; patented 1898.

Operation continuous and production large.

Most convenient in handling and thoroughly well built.

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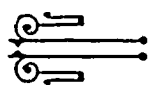
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WHOLESALE GROCERS - Cor. Front and Scott St., TORONTO

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Bills Executed with Satisfaction.

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Send four 3-cent Canadian postage stamps for a copy of the LUMBERMAN'S VEST-POCKET INSPECTION BOOK, containing rules for the inspection of Pine and Hardwood Lumber in the Leading Markets of the United States and Canada.

Address: The CANADA LUMBERMAN, Toronto, Ont.

FLAX STRAW AS PULP MATERIAL.

The Paper Mill is authority for the statement that English capital will be interested in a proposed pulp mill to be built at Niagara Falls, N. Y. It is said that the Lloyd's Limited, Insurance and Financial brokers, and Mr. Harold Krall, London, Eng., will be important factors in the new project. From what can be learned the mills play an important part in the revenue of western farmers, inasmuch as the straw of the flax is the raw material to be used in this new pulp mill.

Concerning the use of this material one contemporary says: "Heretofore it is understood to have been the custom of the growers of flax to cut off the top of the growth in order to obtain the head and seed for oil and other purposes. In many instances it has been a practice, it is said, to either burn the straw or plow it under, the growers not finding a market for this part of their product. It was this plentiful

supply that led to experiments being made, with the result that a process has been discovered whereby this straw, heretofore practically useless, will be turned into pulp, and this pulp, those who know state, will be of fine quality. The men interested have been through the West and have made a full and careful examination of the situation in regard to the amount of raw material possible to obtain and the probable cost of the same, and they are delighted with the outlook. This raw material, the flax straw, will be baled out west in a dry state. The cars will be loaded to their utmost capacity, and it will be shipped to the mill at Niagara Falls. In shipping it in a dry state the consignee will not have freight to pay on green or water-soaked goods, and thus an item of considerable expense is avoided. To dry the flax straw, is to study economy in the same manner that the wood now brought from Canada is barked before shipment. On arrival at Niagara the straw will be fed to the

machines in the proposed mill. The process to be used is understood to be similar to the manner in which wood is now treated in the digesters of a sulphite mill. The fibre is said to be remarkably strong, and it is understood that the product of the mill will be shipped to eastern manufacturers of high-grade book paper. One Niagara Falls paper maker stated that he had intimated to him that the promoters of the new company already had a very desirable market open to them for their product. It is further stated that the pulp made from flax straw will make even a stronger sheet of paper than rags, while it is much nicer in color and can be made much cheaper. To-day many mills are running and using bleached sulphite in book paper, and it is understood that the new flax straw pulp will replace this material in many of these mills."

A report states that Mr. J. C. Morgan, who represented the International Paper Co. in England, has been engaged as manager of the new concern.

POSITION WANTED

A Competent Accountant, with large practical experience in the Lumber and Saw Mill business, desires to form connection for further work, or would undertake charge of Accounts and Bookkeeping together with official correspondence and orders. Excellent references. Moderate terms. Address "RELIABILITY," CANADA LUMBERMAN Office.

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... AND SHIPPER ...

Office: Room 35 Land Security Chambers
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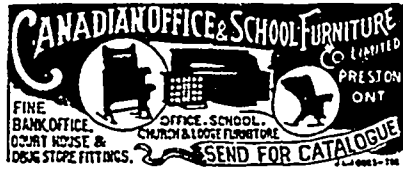
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NEW AND SECOND-HAND STEEL AND iron rails for tramways and logging lines, from 12 lbs. per yard and upwards; estimates given for complete outfit.

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This Axe stands better in frosty weather than any axe made. Send for sample. Can supply any pattern.

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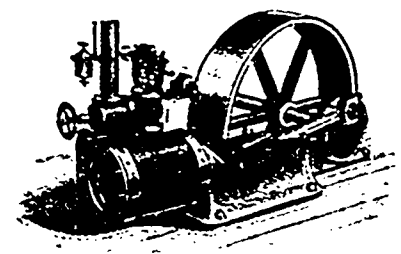
The Leading European Lumber Paper
The Timber Trades Journal
Published Weekly by WILLIAM RIDER & SON, Ltd., 14 Bartholomew Close, LONDON, E. C.
SUBSCRIPTION: \$5.00 PER ANNUM, POST FREE
The "TIMBER TRADES JOURNAL" circulates in all European countries, the British Colonies, United States, &c., and is a very reliable medium of publicity for all buyers and sellers of hardwoods.

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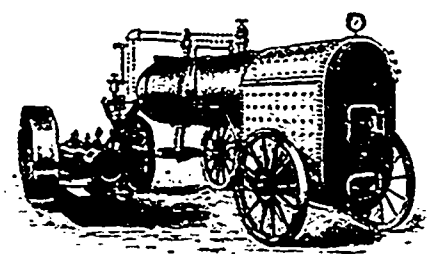
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For Lumbermen and Others. For any Purpose, and of any Power.
We make Several Styles, but only One Grade—THE BEST.

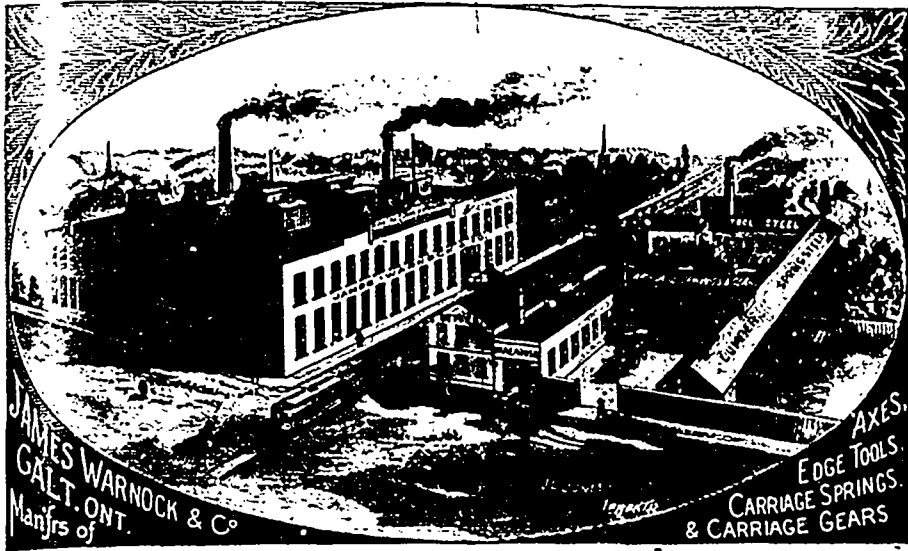
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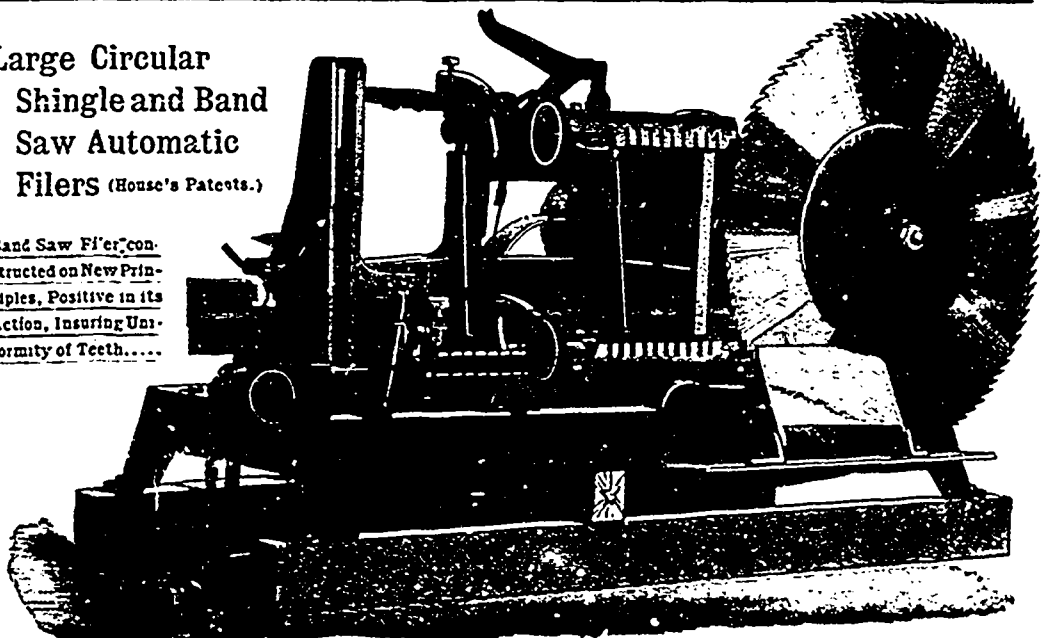
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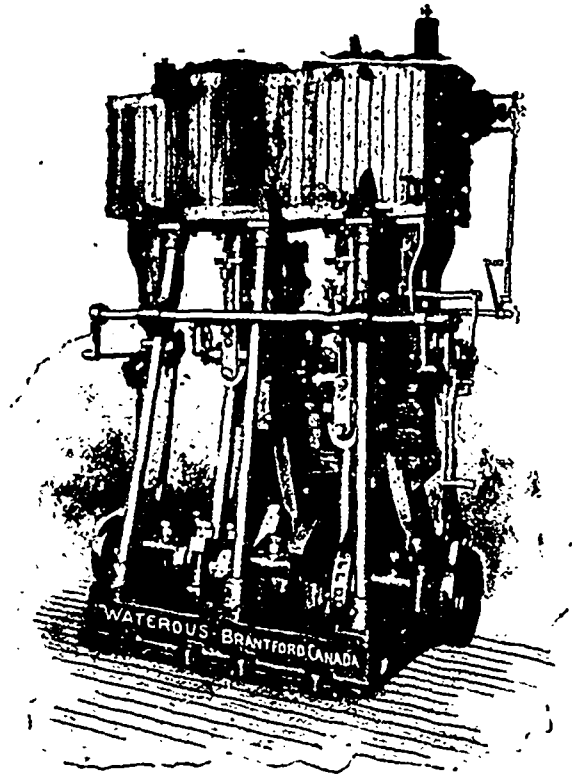
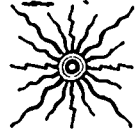


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Drier Dry at 240 lbs C.W.P.
Built for 150 pounds.
Allowed 136 pounds.

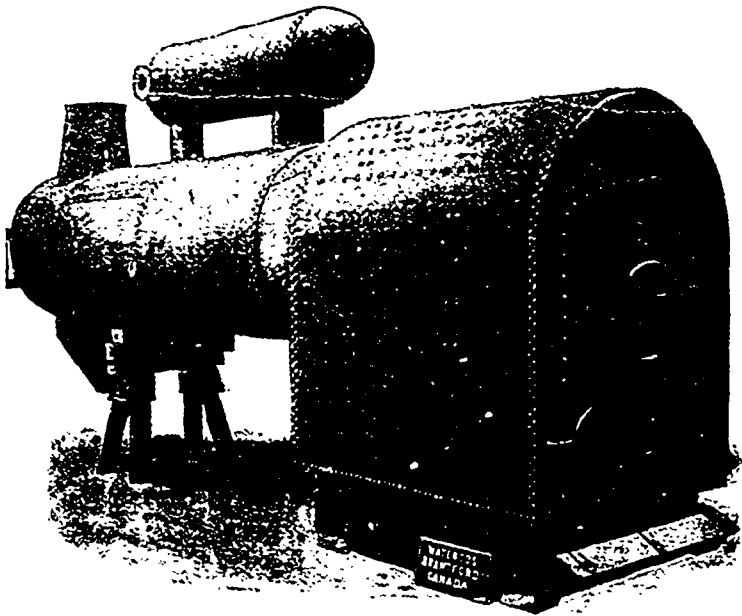
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Fore and Aft Compound 10 and 20 x 12, driven by
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A Locomotive or Deep Square Fire Box, Direct Draft. Built for 175 pounds,
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16 x 72 Cylinders, 28 rev.

We have made for many years a Specialty of

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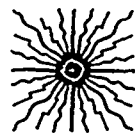
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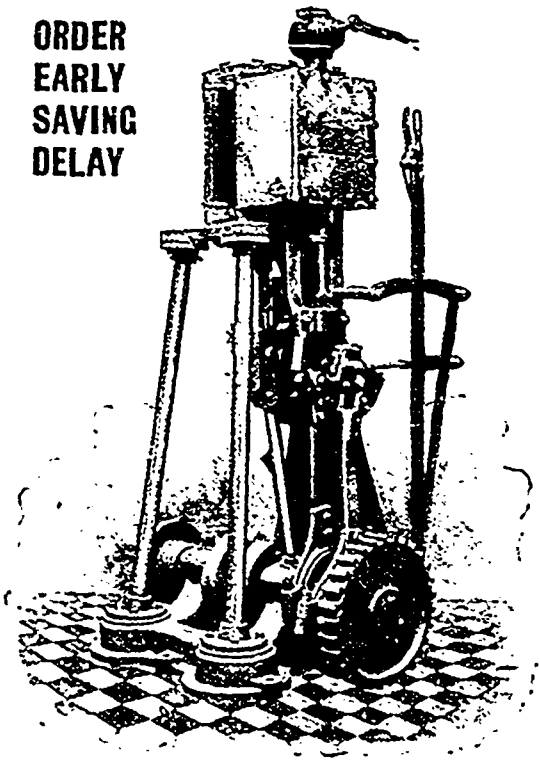
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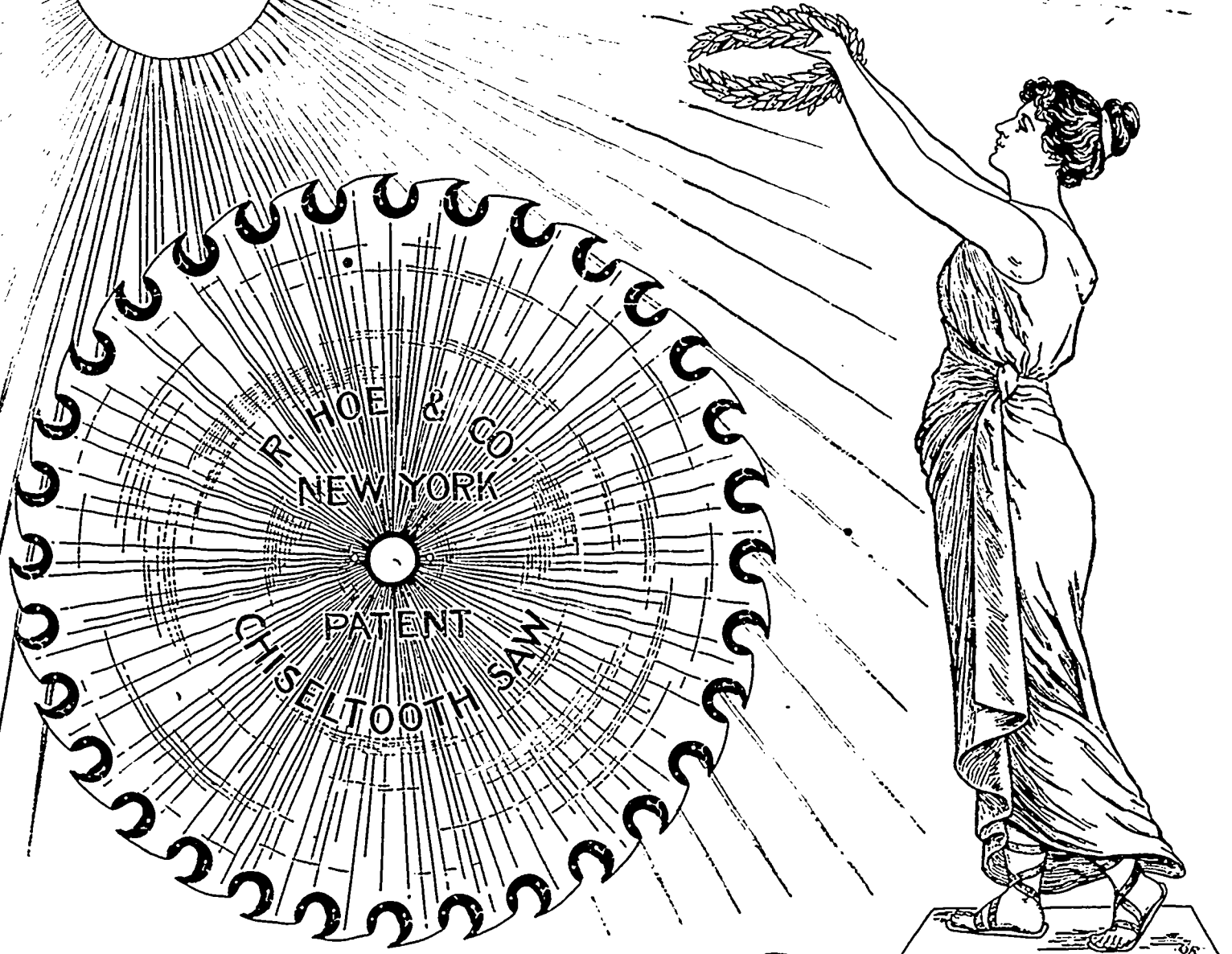
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SQUARE FIRE-
BOX MARINE —
78 x 120; built for
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141 lbs.; Tug Mary
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Six Boilers of
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Made—in use in
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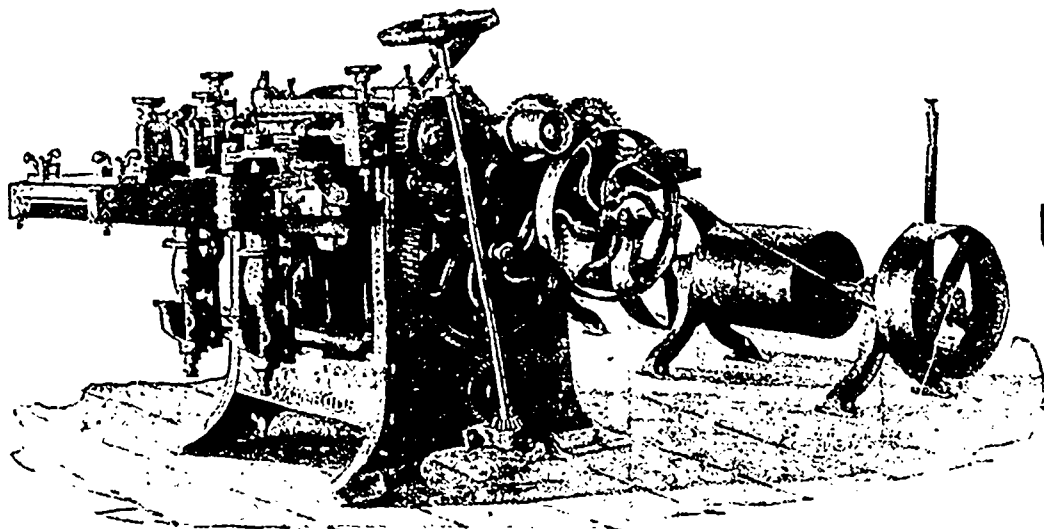


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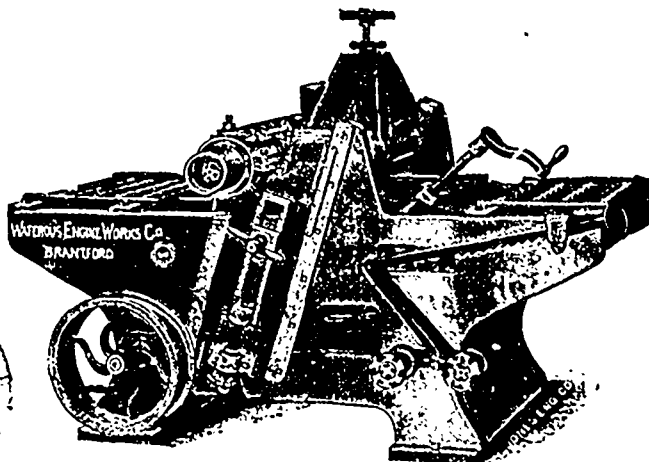
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WRITE FOR THE ADDRESS OF OUR NEAREST AGENT

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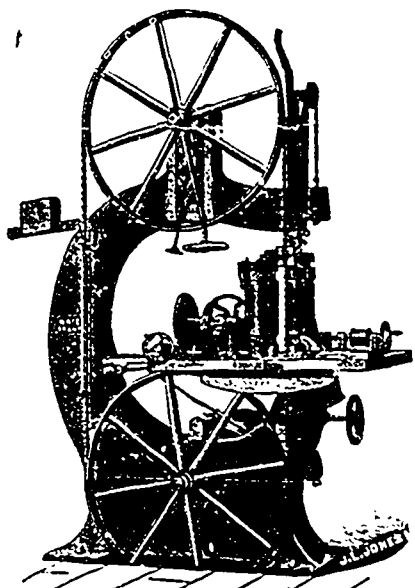


THE ECONOMIST PLANER, MATCHER AND MOULDER.—Mandrel Double-Belted—all Feed-Rolls Driven—Strong, Powerful Feed.



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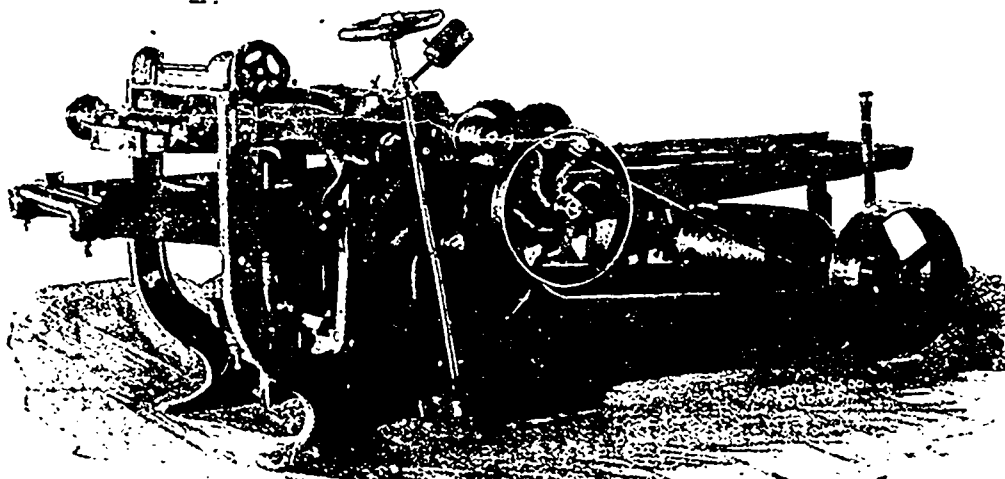
Single and Double Cylinder—a Positive Fast Feed for Green, Wet or Icy Lumber—Very Suitable for Saw Mills that ship Planed Lumber.



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for the
Heaviest
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in Slabs,
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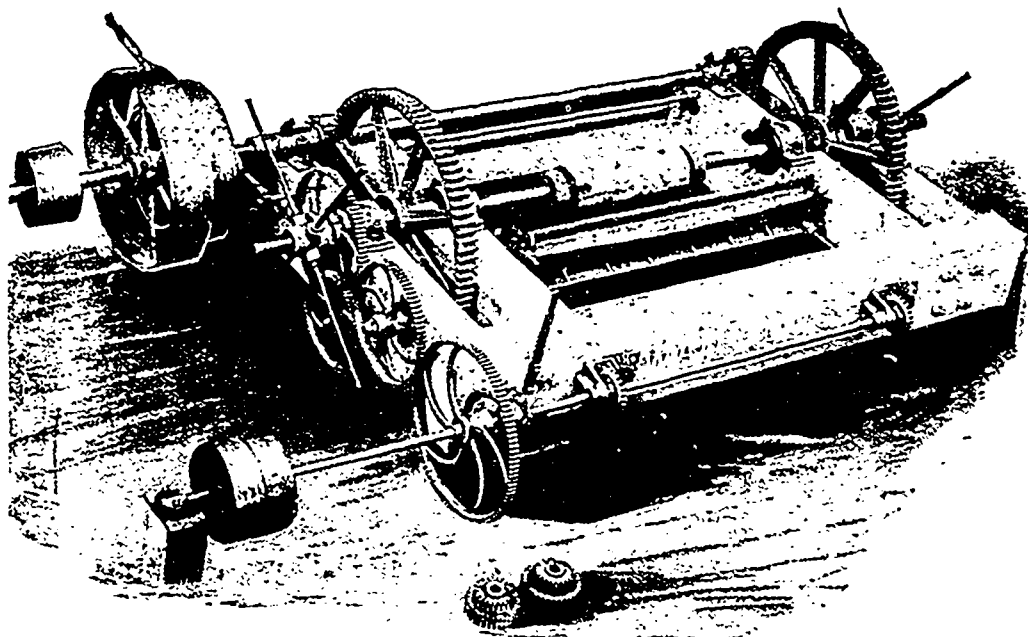


THE CHAMPION PLANER, MATCHER AND MOULDER, with Extended Frame and Table.—Mandrel Double Belted—all Feed-Rolls Driven—a Heavy, Fast and Very Popular Machine.

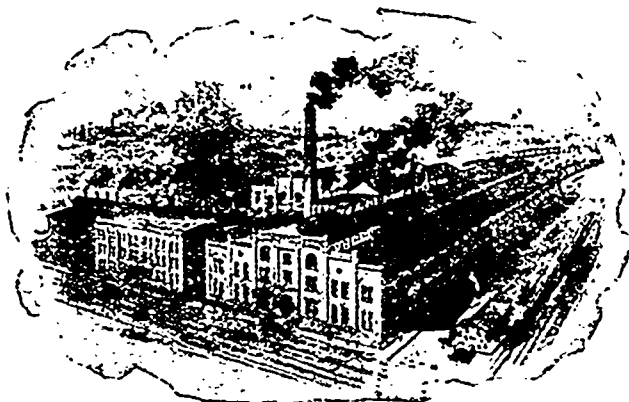
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One Re-Built Egan Band Re-Saw, ready to ship; Wheels, 60 in. diameter; Lower Wheel Solid Disc; uses Saws up to 6 in. wide, 31 ft. long. Has been in use in a saw mill re-sawing slabs and lumber. Was replaced with a Heavy Band Re-Saw of our make. This Machine is ready for immediate shipment.

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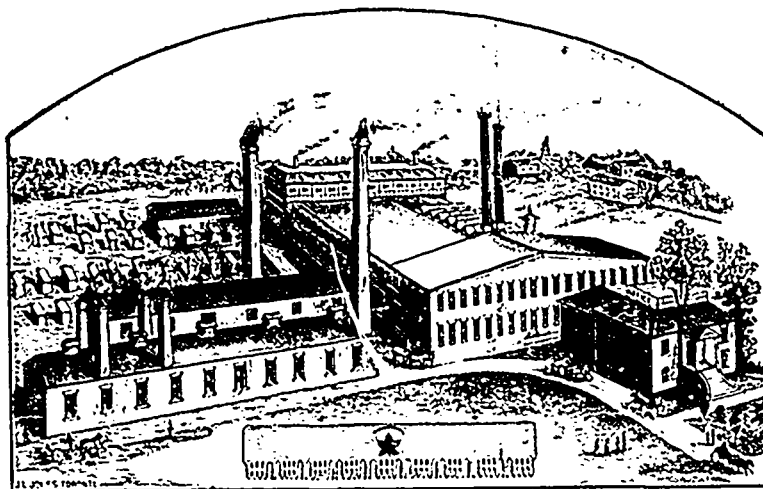
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This Saw Stands Without a Rival

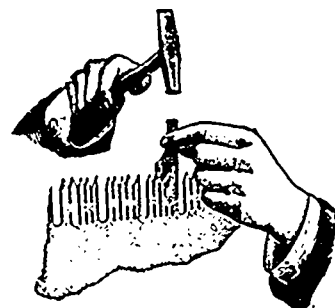
AND IS THE
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Its Superiority consists in its Excellent Temper. It is made of "Razor Steel," which is the finest ever used in the manufacture of Saws. We have the sole control of this steel. It is tempered by our secret process, which process gives a keener cutting edge and a toughness to the steel which no other process can approach.

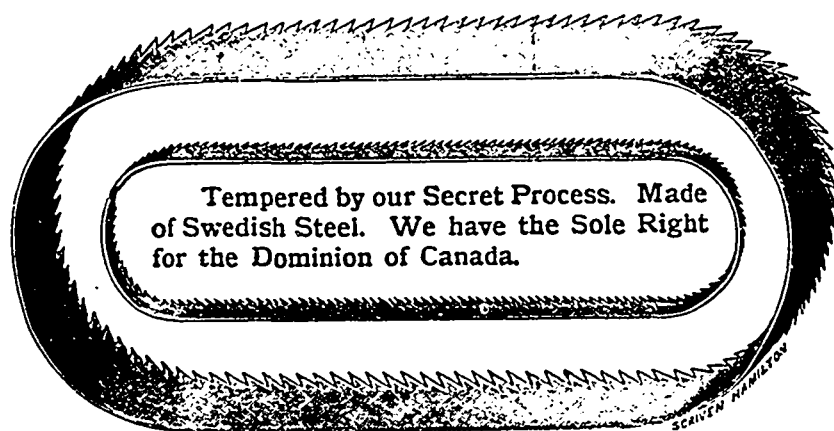
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 If you follow directions you cannot make a mistake. Be sure and not strike too hard a blow, and it will set the hardest saw. On receipt of 40 cents we will send one by mail.



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HIGH GRADE BAND SAWS
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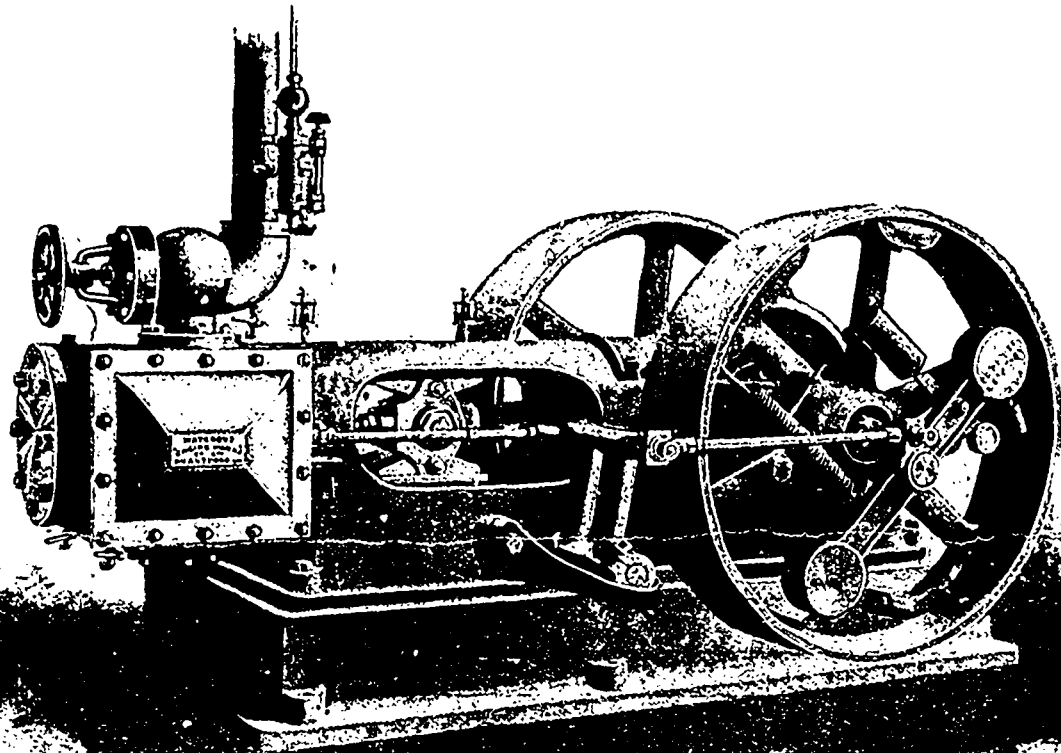
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Perfect Balance—photographs of 50 h.p. placed on rollers, not held down by bolts or otherwise, running at full speed, show Engine clear cut and still except in reciprocating parts.

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"The engine shall not run one revolution slower when fully loaded than when running empty, and a reduction of boiler pressure from the greatest to that necessary to do the work will not reduce the speed of engine one revolution. Any engine failing to meet this guarantee becomes the property of the purchaser upon payment of one dollar."

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Band Saw Mills

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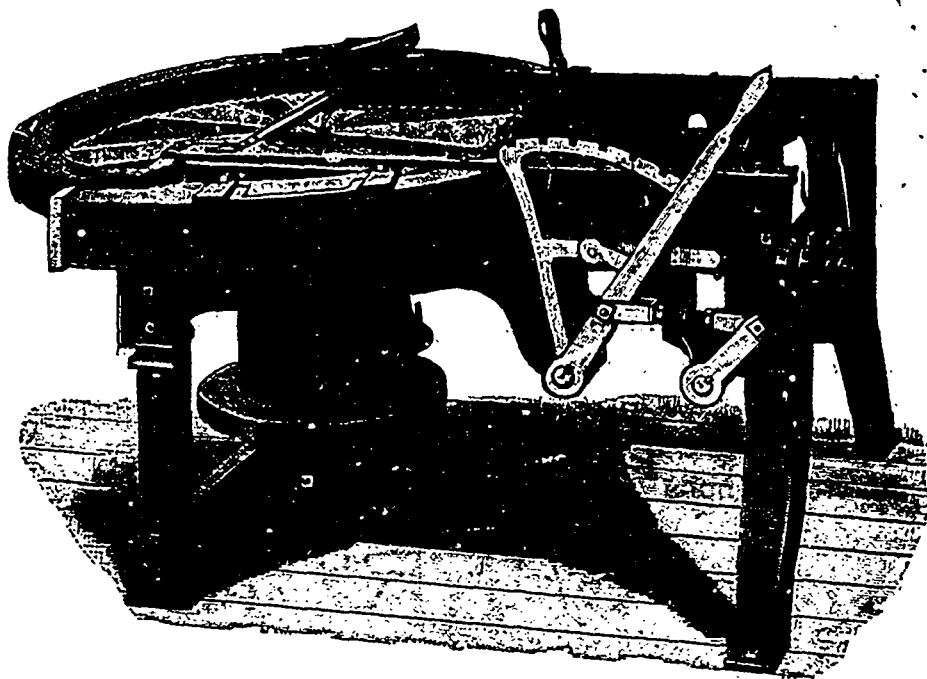
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Saw Filers, and all of

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DAUNTLESS SHINGLE AND HEADING MACHINE.

Size No. 1 takes Saws up to 42" diameter. Size No. 2 takes Saws up to 48" diameter. Capacity 25,000 to 50,000 per day.

Our Patterns are New and of Modern Design. We can give you a Complete Outfit and guarantee results. No trouble to quote prices.

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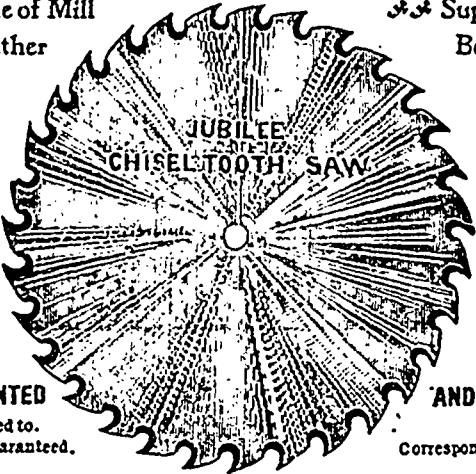
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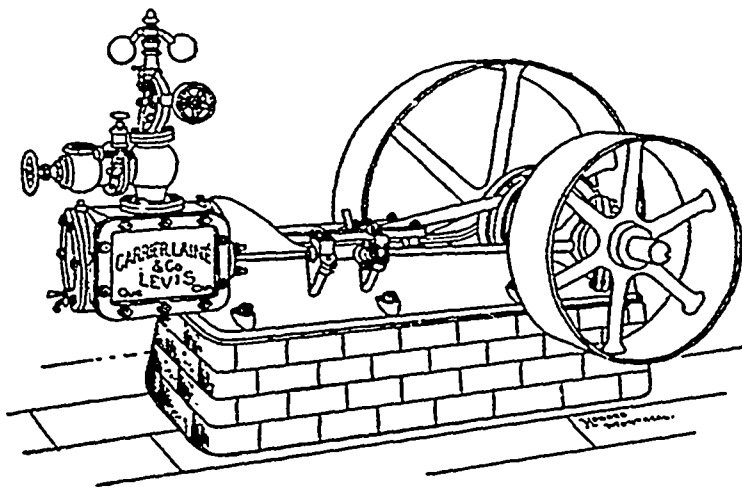
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10

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But if that “3” represents Middlemen's commission on the Machinery you buy, you had better make a change and deal at head-quarters.



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Portable and Stationary Engines and Boilers

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SHINGLE MILLS, LATH MILLS

EDGERS,
PLANERS and
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Modern Patterns in Every Line.

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We are equipped to build any special machine you may require.

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USE THE FAMOUS .. PINK LUMBERING TOOLS

Duck Bill Peavies, Round Bill Peavies, Finest Duck Bill Winter Cant Hook

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For Either Single or Double Toothed Saws

Is built on correct mechanical principles.

This entire mill is moved vertically, so that the centre of the upper band wheel can be brought down close to the top of the smallest log, thereby having a saw shorter than a gang saw above the work on any sized log, thus doing away with upper guide.

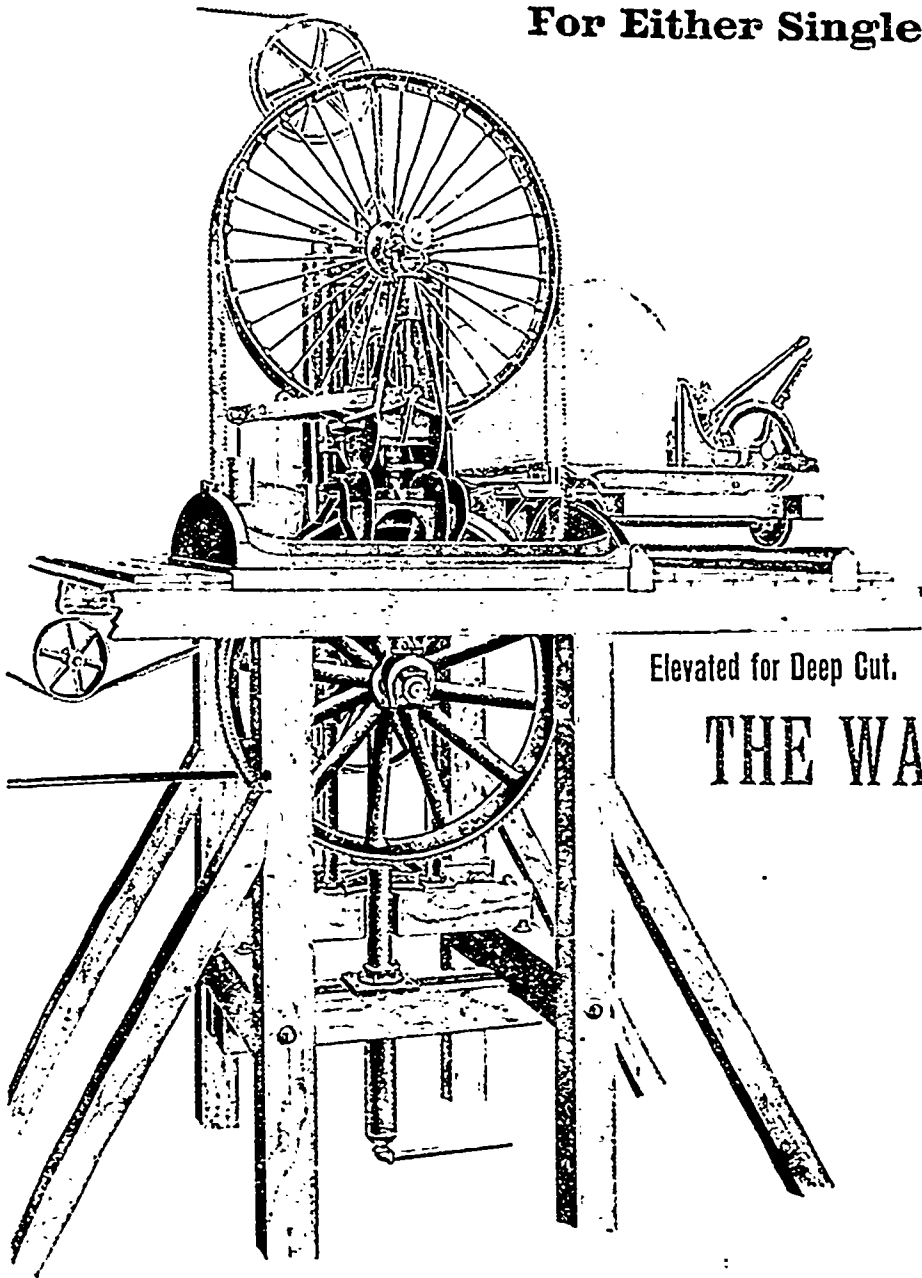
The vertical movement keeps the surplus length of saw blade below instead of above the log. The upper wheel acting as the guide, insures the greatest possible rigidity of the saw, enabling the saw to stand more feed than on the ordinary band mill.

Elevated for Deep Cut.

Manufactured in Canada only by

THE WATEROUS ENGINE WORKS CO.

BRANTFORD, CANADA



As a Double Cutting Mill

No Offset—carriage travels at uniform speed each way, saving rack and strain.

Safer—each side of saw cuts its own clearance.

Smoother lumber; teeth not cutting almost plane the lumber in passing.

Saws last longer, require less work to keep in order—strain being equal on both edges.

Increased Cut—30 to 50% with practically no additional cost.

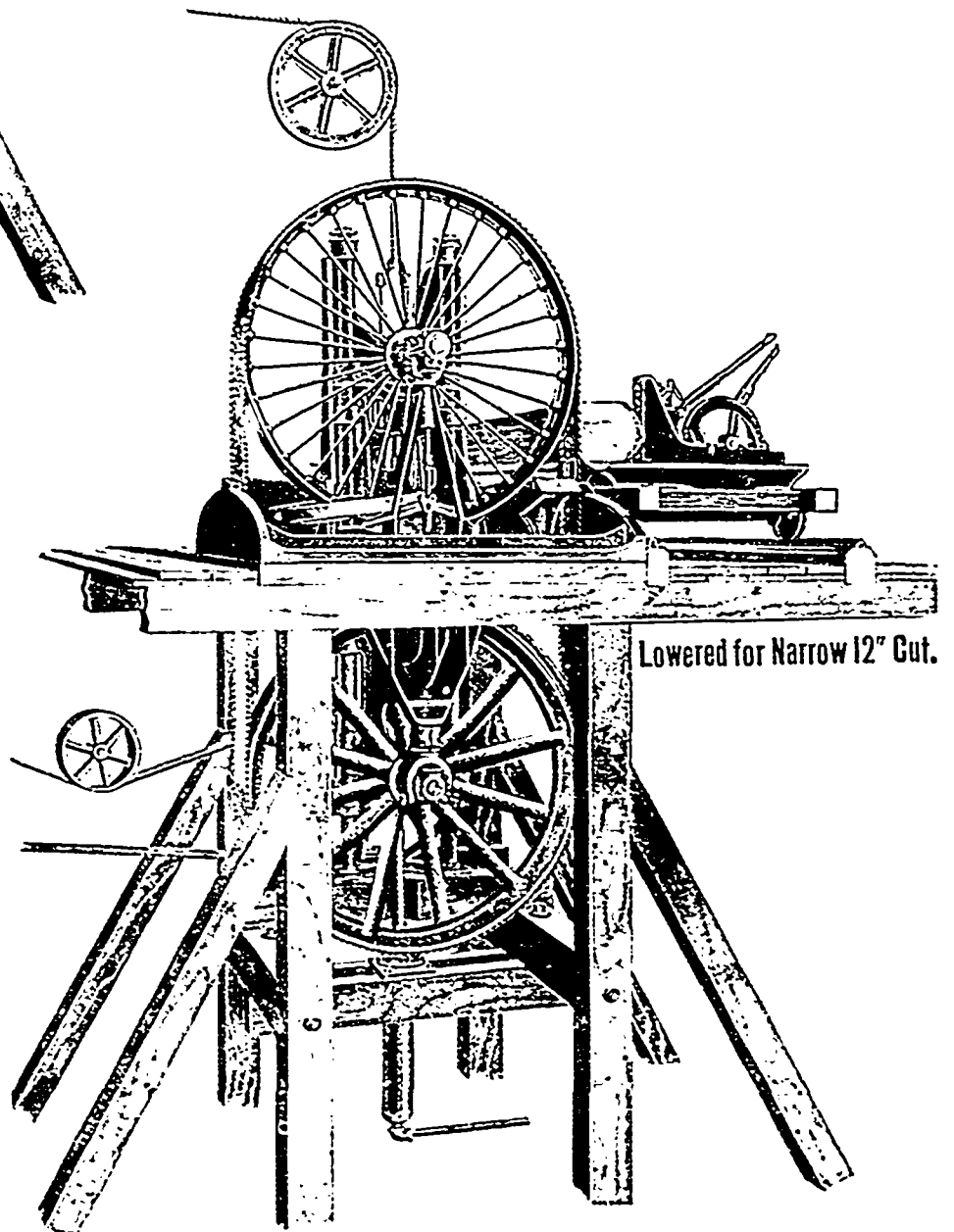
Adjustment to depth of cut quicker than operating the old guide.

J. D. Shier, Bracebridge, Ont., has run this mill as a double cutter night and day all season, and verifies the above statements. He is more than pleased, says no one can afford to cut lumber with any other mill.

The Rat Portage Lumber Co., Norman, Ont., have run it as a single cutter all season, and are especially well pleased.

PLEASE NOTE.—Our capacity is limited—even with increased facilities and very much larger force—we have been and are running to our utmost capacity. Prices are advancing in sympathy with the large and steady increase in raw materials.

To obtain earliest delivery—probably then later than desired—orders should be placed at once. Some recognizing this have already ordered Telescopic Bands for next year's work.



Lowered for Narrow 12" Cut.

WATEROUS, BRANTFORD, CANADA

SAW MILL MACHINERY

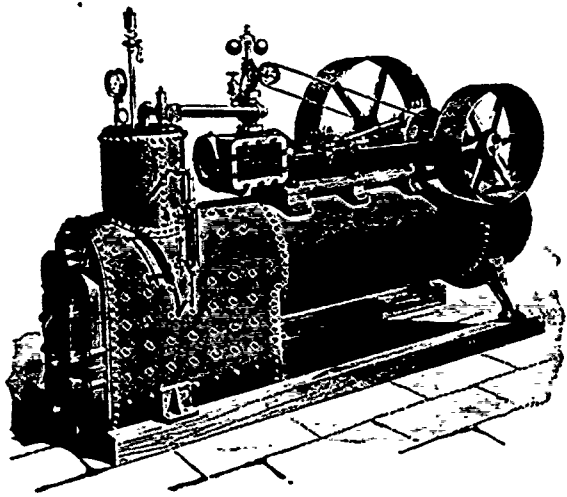
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Wheelock Automatic Engine, 17 x 34. Good as new.
Leonard Ball High Speed Engine, 10 x 12.
Double Edger, refitted, three saws. Cheap.
24" Little Giant Water Wheel.
Send for New Catalogue No. 21.

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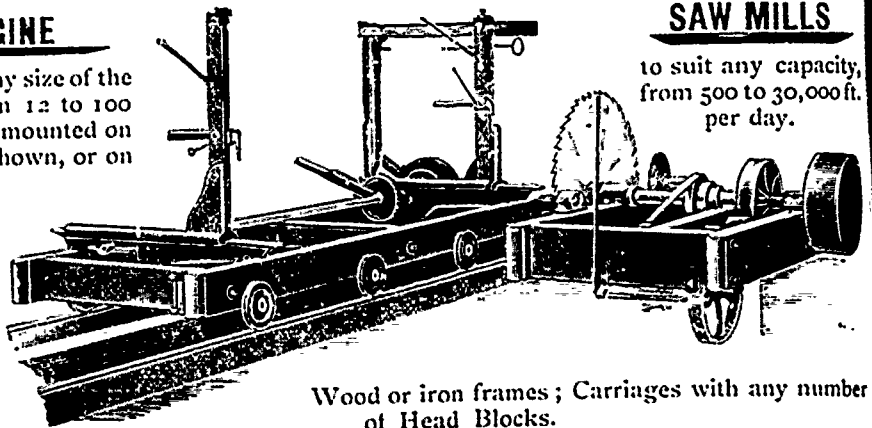
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SAW MILLS

to suit any capacity, from 500 to 30,000 ft. per day.

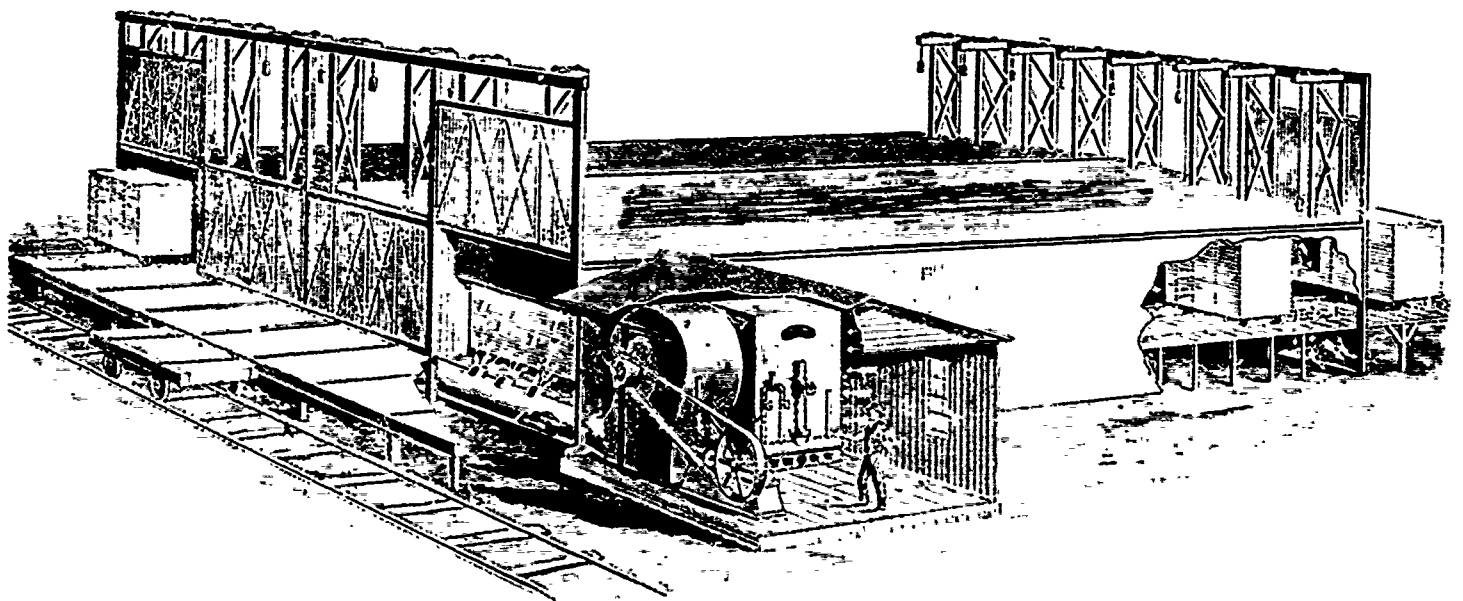
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