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THE CANADA LUMBERMAN

VOLUME XVI. }
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TORONTO, ONT., NOVEMBER, 1895

TERMS, \$1.00 PER YEAR.
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THE LATE PETER THOMSON.

MR. PETER THOMSON, of whom we reproduce an excellent likeness in this issue, died at headquarters in Algonquin Park, on the 5th of September, at the age of 61 years. At the time of his death he occupied the position of superintendent of the park, having been appointed chief ranger in July, 1893, shortly after the passage of the act by the Ontario legislature setting apart the reservation as a national park, and promoted to the office of superintendent in May of the following year.

Mr. Thomson was born near Kingston. He served his apprenticeship to the carpenter trade, afterwards working in the United States, whence he returned to Canada and spent some time in Hamilton. From there he removed to the village of Ainleyville, now Brussels, in the county of Huron, where he spent the greater part of his life, working at his trade and taking building contracts in the village and neighborhood. About nine years ago he came to Toronto, where he continued to reside till appointed superintendent of the park. He was engaged in building operations in that city, his largest contract being the Arlington hotel. For two years before going to the park he was employed more or less by the Ontario government, in superintending the erection of bridges in connection with the colonization roads branch of the Crown Lands Department, a work for which he was well fitted and in which he gave great satisfaction to the department. After he was transferred to Algonquin Park he took a deep interest in that reserve, and had accomplished much in the way of improvement and in the general carrying out of the purposes which the government had in view in setting it apart.

Mr. Thomson lost both parents somewhat suddenly when young, and was thrown pretty much on his own resources to make his way in the world. He was well liked by all, and though in the heat of election contests, in which he always took an active part, he could hit hard blows for his party, after the battle was over he was on good terms with everybody.

The disease to which Mr. Thomson succumbed was paralysis. He belonged to the Canadian Order of Foresters and the Ancient Order of United Workmen, under whose auspices his funeral was conducted at his old home in Brussels. His wife died about ten years ago, and he leaves a family of grown-up daughters. By his death the government has lost a faithful and well tried servant.

DEEP WATERWAYS AND THE LUMBER TRADE.

At the recent Deep Waterways Convention at Cleveland two papers were read bearing on the relation of a deep waterway between the great lakes and the sea and the lumber trade. One was by Mr. R. R. Dobell, of Quebec, the well known timberman; the other by Mr. A. L. Crocker, President of the Minneapolis Board of Trade. The following are the papers, which will be found of much interest:

EFFECT OF DEEP WATER BETWEEN THE GREAT LAKES AND THE SEA UPON THE EXPORT LUMBER AND TIMBER TRADE, BY RICHARD R. DOBELL, EXPORTER, QUEBEC.

Perhaps there is no other article of western production that will derive so little direct benefit from the deepening of our waterways as lumber and square timber brought from Michigan and other points west of Lake Superior and Wisconsin. The reason for this I need not enlarge upon, when it is known that the bulk of the square timber which is made on the shores of the great lakes, when brought down to a shipping point, is only carried as far as Garden Island by barge, there loaded up and floated down the river, passing through

the rapids without the least damage, and so delivered in the booms at Quebec.

Unfortunately this trade is gradually being restricted, for the simple reason that the oak forests of Michigan, Ohio and Indiana are pretty nearly exhausted, so that it is difficult even now to get the average and size of logs necessary for the English market.

The large pineries of Michigan and other western points have also been pretty well cut through, and the enhanced cost now of standing timber makes the price for this pine too high for what can be obtained in England; the consequence is that the square timber exporting business is becoming less each year, and will soon be a thing of the past.

The lumber and deal trade is in much the same position. Fifteen years ago, very large quantities of deals were made in Michigan and sent forward to the English



THE LATE PETER THOMSON.

markets, and these no doubt, would have benefitted considerably if they could have been sent through without breaking bulk.

One of the greatest drawbacks in handling western lumber is that the large barges which carry the lumber to Kingston have there to discharge into smaller barges, which is more or less injurious to the lumber, and very often necessitates leaving portions of a barge-load for some other craft to carry down to Montreal. Here arises the necessity for a continuous deep channel from the lakes to salt water. A considerable saving would be effected in the cost if there were unbroken deep navigation out of the lakes, as lumber can be floated from any port in the vicinity of Michigan to Kingston at \$3.50 per M. feet, while the charge for the short distance from Kingston to Montreal, in small barges, is \$1.75 per M. feet.

If the large barge could go through direct, the bulk of this \$1.75 would be saved to the shipper of the lumber, and to the consumer ultimately.

With this, as well as in square timber, there is a falling off in the export trade, and it is now of such importance as would make it alone a feature to influence the carrying out of this work of providing deeper channels. For some years, no doubt, a certain quantity of western manufactured lumber will be sent to Europe, and it would probably stimulate this trade a little, and cheapen the cost, could it be sent through without breaking bulk

at Kingston, but the whole volume at present is not sufficient to make it much of an argument in favor of the expensive work required.

DISCUSSION BY MR. DOBELL.

Mr. Dobell was asked to discuss the points of his paper. He said:

I do not think it necessary to detain you many minutes, because the paper which I prepared at the request of our very indefatigable secretary, is hardly of importance sufficient to occupy your time to-day. The bulk of our lumber trade is carried on in the manufacture of square timbers of oak from Michigan, Ohio, Indiana, and as far south as Arkansas, brought by railway to Toledo, taken in schooners to Garden Island, and rafted down to Quebec, where it is put into ships and sent to Europe. It is therefore quite necessary for our interest to have deeper waterways. I am not sure but we can trace Cleveland as being one of the off-springs of Quebec. Years ago Quebec had a large ship-building trade. For the last ten years we have not built one ship in Quebec. All the shipwrights and carpenters who were educated in Quebec were forced to come to these upper lakes and settle in Buffalo, Toledo, Bay City, Cleveland, Superior and Detroit. We therefore think that to some extent these cities are indebted to Quebec as the nursing mother of their industries. When I went to Quebec, nearly 40 years ago, we used to load from 1,200 to 1,500 sailing ships annually. When I left Quebec, less than a week ago, not one sailing ship had been in the harbor for five weeks. That trade has completely passed away from us, owing very largely to the depletion of the forests and the change of trade, against which Quebec has been powerless to combat. As far back as 15 years I claimed that Quebec was suffering as our far west is suffering to-day. When our canals were made in the earlier history of this country, they were thought to be quite sufficient for any future trade. At that time navigation from Quebec to Montreal could not be accomplished by any vessel of more than 400 to 500 tons. Now a steamer of from 8,000 to 9,000 tons passes from Quebec to Montreal. I believe that this very work which we are initiating to-day—the deepening of our lakes—will bring Quebec again in touch with your city of Cleveland and the far west, and will again enable Quebec to take her place as a shipping port of the great industries, not only for this country, but the whole of Europe.

Chairman McGinnis: A. L. Crocker, President of the Board of Trade of Minneapolis, will follow on the same topic:

MR. CROCKER'S PAPER.

In preparing this paper, the attempt was first made to gather statistics of the world's lumber business, with prices and freight rates, then to make a comparison of the same with the resources, prices and freight rates of the lumber supply tributary to the great lakes as a transportation factor, with a view to developing what effect a more perfect navigation and lower rates would have in bringing the lumber of the great lakes into the markets of the world, and what part such lumber would play in those markets.

The meagre statistics obtainable precluded this plan. And, too, the fact that European markets cannot be compared in magnitude with our home demands and are largely supplied from north Europe, along with the fact that soft mahogany of the African west coast, existing in vast quantity and cheaply marketed, is now entering largely in consumption for many uses, and at prices that the high priced stumpage of the United States cannot compete with.

Limiting our views then, a glance will suffice to note

in passing, the export and import reports of the lumber business of the United States as given by the last census. We find in round figures as follows:

	Lumber.	Logs and Timber.
Exports.....	\$9,355,000	\$2,636,608
		Other Lumber.
Imports	\$6,137,000	\$1,490,000
The Pacific coast ports shipped.....	\$ 770,000	
Atlantic ports south of New York city.....	5,412,000	
Atlantic ports north of New York city.....	316,000	
New York city.....	2,354,000	

The item of shipments from North Atlantic ports is so small that it may be disregarded in the comparison. South Atlantic and Pacific ports evidently do not draw their supplies from the great lakes, and we are therefore left with New York as the export point for great lakes lumbermen. The estimate of 25,000,000 feet is given for New York.

Although somewhat foreign to the subject, it may be interesting to notice who our foreign customers are:

Portugal and Spain take	\$ 122,000
West Indies.....	2,000,000
South America.....	1,738,000
Canada.....	526,000
Central America.....	406,000
Pacific Ocean countries.....	439,000
Africa.....	317,000

We import two-thirds as much as we export; and Nova Scotia, New Brunswick, Quebec and Ontario furnish it all, and New York and New England take practically all of it.

Coming directly and finally to the subject under discussion, the lumber trade on the great lakes, I find no words so fitting with which to state the facts and make plain the existing situation as those furnished me through the columns of the Northwest Lumberman.

The white pine industry of the Northwest has been one of the more important agencies in the settlement and material development of the great interior of this country. In its original state, the Mississippi valley spread between the great lakes and the Rocky mountains, a vast, treeless empire, rich in agricultural capacity, but needing lumber to render settlement and improvement possible. To the northeastward, stretching from Lake Huron on the east to the Red River of the North, in the far northwest, lay the great white pine belt, covered with countless billions of as fine timber as ever grew on earth. In the midst of this wealth of forest area spread the great lakes, ready to float on their waters the product of the mills to different tributary markets. Into these lakes flowed the streams which were to convey the logs to the mills. Nature seemed to have laid out all the grand plan and provided the contiguity of resources so that settlement and development of the prairie region could be accomplished with startling rapidity.

Without doubt the phenomenal growth of this country in population and wealth has mostly resulted from the relation of the pine supply of the northwest with the opulent lands of the Mississippi and Missouri river valleys. Out of the western extension of the pine belt runs the mighty Mississippi, which for many years has borne the logs of the northern forests to the mills along the stream to St. Louis. Thus, almost simultaneously from Lake Huron to the upper Mississippi waters, the white pine industry sprang into importance as a development and a civilizer.

The Michigan and Huron product spread out into Ohio, Indiana, and lower Michigan and the east, and some overflowed into Michigan markets. The products of the Michigan and Wisconsin forests were conveyed by easy passage to Chicago, the greatest lumber market of the world.

Analyzing these great lake sources of supply, and grouping them according to market and transportation influences, we might have the Lake Huron district, the Lake Michigan district, the central Wisconsin and Mississippi river district taken together, and finally the Lake Superior district. The attraction for the Lake Huron and Michigan district, comprising western Michigan and eastern Wisconsin, was divided between the eastern demand and the great corn states to the south. The product of the district, composed of Central Wisconsin and Mississippi river pine lands, was drawn to the prairie states to the west and southwest. Finally we have the Lake Superior district, composed of the Duluth-Superior, Ashland, Ontonagon, Marquette and Sault Ste. Marie points, estimated to possess in standing pine 15,000,000,000 feet, with a production this year

of 700,000,000 feet, of which 70 per cent., it is estimated, goes to Tonawanda, and 25 per cent. to Chicago and Michigan points.

I am only here to make a presentation of the facts as I find them, not what I might prefer as bearing on the necessity for a deep water route to the Atlantic coast. I find the facts to be, then, as follows: The district I have designated as the Lake Huron district is practically exhausted, and what remains is in few hands. Some 300,000,000 of Canadian logs are floated across Lake Huron to supply the saw mills of this district. The Lake Michigan district is in a lesser but increasing degree of exhaustion, and is drained largely to the south, to Chicago and the markets in the corn states. The product of the central Wisconsin and Mississippi river district does not seek the great lakes, but is and will be absorbed by the prairie states west and southwest. There remains then the Lake Superior district, with an estimated 15,000,000,000 feet of standing pine, which at the present rate of consumption would last something over 20 years. I am aware that timber estimates are dangerous, and it is possible that 20 years from now there may be another equal term of years given as the life of the standing forests.

The point I make, however, is that the enormous and growing home demand will absorb the supply. The total of the great lakes product for 1892 was 8,903,000,000; for 1894, 7,763,000,000. The experience of those in Wisconsin and Michigan who have attempted the export business is, that all that is required for export is the best quality, and which disposed of leaves the remaining stock unsaleable. Wisconsin and Minnesota are the present and the future white pine suppliers of the country, and much of the standing timber of those states is not of a quality for export.

A further consideration of the possibilities shows that the great timber resources of the west coast are straining every nerve to reach markets; that they are not shipping by water round the Horn to the eastern states; that they are shipping high-grade stuff by rail in large and increasing quantity to the east.

I am not prepared to endorse the claim made to me recently by the general freight agent of one of our largest transcontinental railroads, viz. that they would shingle the whole country with west coast shingles; but I offer some of the items bearing on this part of the subject that may be interesting. Of the three great timber states of the west coast, viz. Washington, Oregon and California, we may disregard the last two, as their product does not now come east largely. My Washington correspondent offers some figures and statements worthy of note. The total product of the Washington state mills is 1,200,000,000 feet, 1,800,000,000 shingles. The rail shipments to the eastern states from Washington in 1894 were 4,279 cars lumber and 12,295 cars shingles. The rail shipments covered thirty-four states. An estimate is all I can get of the Superior-Duluth business in this line, and the estimate is made that 2,500 cars go by lake and rail to eastern points. This shipping route is suffering from the difficulties incidental to new lines, and the complaints are loud at breakage in transit, poor facilities and many annoyances.

These things, however, are improving, and the statement is made that any improvement east in water transportation will be hailed by west coast shippers, as they claim already they are extensive shippers to Ohio, Indiana, Illinois, Iowa, Minnesota, Pennsylvania, New Jersey, New York and New England. Even now we are shipping, they say, doors to Portland, Maine; spars to Barre, Vermont; masts to Boston, and shingles to Buffalo, Philadelphia, Baltimore and other points.

Anything lessening freight rates will certainly greatly enhance shipments.

PUBLICATIONS.

What is generally conceded in Philadelphia to be one of the most desirable building sites in the city has just been purchased by The Ladies' Home Journal. On May 1st, next, the houses thereon will be torn down to make room for a building costing \$250,000, to be solely owned and exclusively occupied by the Journal. The Ladies' Home Journal is especially engaging in its illustrations and bright in every line, exactly adapted to the Thanksgiving season's diversion of all members of the household. By the Curtis Publishing Company, Philadelphia; one dollar per year; ten cents per copy.

NEW BRUNSWICK LETTER.

[Regular correspondence CANADA LUMBERMAN.]

THE drought which has prevailed for so long has been a disaster to this province. Many mills have had to shut down, some because they have logs and no water, some because they have water and no logs, and some because they have neither water nor logs. There are millions of feet of logs in the St. John river, to say nothing of the smaller streams, which cannot be brought down this season. There has been a little rain, but not enough to do much good. In fact, it would take a week's run to raise the streams to anything like their normal condition. Many of the mills now shut down will not be able to resume work this season.

At the sale of timber berths at Fredericton the early part of the month, four berths were disposed of at the upset price. There was no competition.

Shipments of spruce to Boston and other eastern points have almost ceased. Stocks are pretty well thinned out, and, besides, it is difficult to get vessels.

A somewhat ambitious project is on foot, looking to the utilization of the Grand Falls on the St. John river, about 70 miles above Woodstock. They are beautiful; now it is proposed to make them useful. A company is being organized at Fredericton to develop the water power, using it for the operation of pulp and other mills, and for the generation of electric power to be conveyed to a distance. Among the members of the company is Senator Proctor, of Vermont, formerly Secretary of War for the United States. Associated with him are a number of local capitalists. The water power at the falls is almost unlimited in extent, and if brought into use in the way proposed will prove of great economic value.

ST. JOHN, N. B., Oct. 24, 1895.

MICHIGAN LETTER.

[Regular correspondence CANADA LUMBERMAN.]

THE sensation of the time here is the failure of A. Mosher & Son, followed by that of Alvin Maltby, the latter having been caused by the former. The Mosher collapse is the greatest ever known in the Saginaw Valley. The firm has done business here for years, and had a rating of \$1,000,000, yet it suddenly came down, with unsecured liabilities of hundreds of thousands of dollars, its assets nearly all covered by chattel mortgages, and barely enough to pay the protected creditors. The Michigan banks are said to hold some \$600,000 of their paper. The chattel mortgages foot up to \$289,000, the total liabilities to close on a million. The firm has always been regarded as of high standing, personally as well as financially. Mr. Mosher, sen., lived at Troy, N. Y., the business here being looked after by his son, Alfred Mosher, jr. Unsecured creditors are attaching everything they can find. An attempt will probably be made to set aside the two largest chattel mortgages. The failure was largely caused by having too many interests in different places. The firm has an interest in lumbering in the state of Washington.

The Maltby failure followed that of Mosher & Son, as the former was carrying about \$150,000 of the latter's paper. No statement of liabilities and assets has yet been made. The failure also caused the suspension of Mosher & McDonald, of Seattle, which in turn involved the Seattle Cedar Lumber Co., so that the effect has been far-reaching.

Log-towing from Canada has practically ceased for the season.

The lumber dealers in Detroit, some 80 in number, have formed an association and advanced prices in some lines.

Draught horses for the lumber camps are in good demand. The steam logger has not altogether superseded them.

Lumber shipments by water show up small for September, but sales have been good, a considerable amount going forward by rail.

An idea of the extent of the woodenware business in this state may be formed from the fact that one firm in Bay City loaded 83 cars with their wares last month.

The Michigan exhibit at the Atlanta forestry exposition is in the form of a pavilion, 13½ x 15 feet, and 9 feet high, which will be used as Michigan headquarters and office. It is constructed of a variety of woods and will contain a number of articles of interest to the trade, including the 44 dummy books of Michigan woods which were at the World's Fair.

For some years the Saginaw Valley has been losing a portion of its trade, dealers from the east having passed us to make their purchases of pine at Lake Superior ports. It is true they got an inferior grade of lumber, but then they secured it at cut-rate prices. Now the trade is coming back to its natural channel, for the high freight rates from Lake Superior have frightened the eastern men. Buyers, however, complain that our prices are too high, but they ought to take quality into account.

Rumors are rife that the Flint & Pere Marquette Railway is going to build a line from Harrison to Mackinaw or some point on the west coast of Michigan. The object is said to be to connect with the Duluth & South Shore R. R., so as to run through trains from Duluth to Toledo and thence east. The report probably arose from the building of a line six miles long from Harrison to the Mackinaw River, to move a large amount of cedar for the Cleveland Lumber Co., but the line may subsequently be extended as indicated.

SAGINAW, Mich., Oct. 24, 1895.



THE NEWS.

—Mr. T. B. Caldwell is about to erect a saw mill at Lanark, Ont.

—Mr. Arthur McGregor has started a sash and door factory at Middleton, N. S.

The Laurentide Pulp Co., Grand Mare, Que., proposes building another pulp mill.

—The recent bush fires in the province of Quebec have done more damage than at first reported.

—A new dock is to be built at West Superior, Wis., which will require 1,750,000 feet of west coast fir timber.

—The hardwood flooring manufacturers of the Northwest have formed an association for mutual protection.

—The unsecured creditors of E. & B. Holmes, of Buffalo, will be fortunate if they get 25 cents on the dollar.

—Advices from Chili, South America, report rapid improvement in business, and increased demand for lumber.

—The Czar of Russia is a lumberman. He has an interest in extensive fir, spruce and pine limits in the Caucasus.

—The drought has seriously affected business on the St. Croix river, N. B. The mills have been almost idle for eight weeks.

—The losses by fire in the lumber trade in the United States so far this year have not been so great as for a number of previous years.

—A Toronto firm has received an order for 2,400 wash boards, the largest single order ever received by any firm making these goods.

—The new pulp mill of the Masterman Sulphite Co., Millcove, near Chatham, N. B., will be ready to turn out pulp by the first of the year.

—The receipts of lumber, shingles and staves at New Orleans for the year ending 31st July were valued at \$3,748,899, as against \$5,542,848 the previous year.

—Canadian made bicycles are being sold in the leading Australian cities. With a growing demand all over the world, what wonder that good elm is hard to get.

—The Bryan Manufacturing Company have secured the contract for all the boxes and packing cases required by the Collingwood Meat Co., for the next two years.

—The Australian mines have been in the habit of using sawn timber for mining props. An effort is being made to induce them to use Douglas fir from British Columbia.

—The prospect with regard to lumber operations in Algoma is very good. The large crop in Manitoba has created a demand for lumber and great activity is anticipated during the winter.

—Mr. Vance, lumberman, of Bruce County, has been in Parry Sound district looking for a site whereon to erect a saw mill for cutting hardwood and cedar, and is also trying to purchase limits.

—The safe in the store of the Dudley Lumber Mills Co., at Scottstown, P. Q., on the C. P. R., was blown open on the night of the 17th of October, and \$2,600, placed there to pay the men, stolen.

—Messrs. Parker Bros., of Hepworth, are pulling down their shingle mill and will build a new one twenty-two by thirty-four feet, on the same site, with a capacity of eleven thousand shingles per day.

—Mr. Schilde, a pulp mill expert, has been in Richibucto, N. B., on a prospecting tour. He says it possesses better facilities for a pulp mill than any place he has seen, and a company to build one is talked of.

—A factory for the making of oars exclusively, with a \$30,000 plant, has been started at Baton Rouge, Louisiana. The material used is principally ash and oak, and a market is found among the navies of Europe and elsewhere.

—Those interested in the wood pulp and paper trades say the supplies of spruce timber in the United States are not by any means unlimited, and that in the near future all wood pulp required by American paper mills must come from Canada.

—A boy named McIlwain brought an action, at the Berlin Assizes, against Mr. Oberholtzer, a saw mill owner, for damages for the loss of three fingers in defendant's mill. The jury found for the plaintiff, holding that there had been negligence on the part of the defendant.

—The movement of Pacific coast shingles through Duluth and Superior this season is very heavy. Shipments of over 48,000,000 from these two ports on line boats to Buffalo mark the growth of the Washington trade with the east as something wonderful.

—Hon. John Haggart, Minister of Railways and Canals, has been interviewed by the solicitor of Mossom Boyd & Co., of

Bobcaygeon, who complain that, owing to the construction of the Trent Valley Canal, the water in Little Bob Lake is being lowered, to the injury of their milling operations.

—The Africa, recently lost on the Georgian Bay, with all hands, and her consort, the Severn, belonged to the estate of the late Alex. R. Christie. They, with another consort, the Marquis, formed the fleet of the Michael's Bay Lumber Co., of which Mr. Christie was president. When the company wound up Mr. Christie took the boats, and since his death the estate has been running them. The Marquis was wrecked on Lake Michigan about two years ago; now both the others are gone. They were engaged largely in lumber freighting.

—The collector of customs at Point Vincent, N. Y., recently inquired if ordinary yellow cedar timber squared by sawing, which is not commercially known or used as a cabinet wood, is dutiable under the provisions of the Wilson law, and was told that the department has already held that red cedar boards not being specially provided for in that act, should be classified as articles manufactured in part and dutiable at the rate of 20 per cent. ad valorem, and that this decision is applicable to yellow cedar and the same rate of duty should be collected thereon.

CASUALTIES.

—Peter Lauzon, of Ottawa, was killed in the woods by a falling tree.

—George Hopkins lost a finger in a jointer in the Rathbun Co.'s mill at Brockville.

—P. Hiffnor, a shantyman, said to come from Toronto, was accidentally killed at North Bay.

—D. J. McDiarmid, proprietor of the hub and spoke factory at Aylmer, Ont., was instantly killed by the bursting of a wood pulley in the stave works. The pulley struck him on the head.

PERSONAL.

Mr. T. Cushing, of Tacoma, has gone to the Canary Islands in the interest of Andrew Cushing & Co., of St. John, N. B.

Rayside, the well-known football player on Queen's University team, has retired from football to engage in the lumber business.

Mr. M. M. Boyd, the Bobcaygeon lumberman, is on a visit to the Pacific coast, looking over the lumber interests of Washington and Oregon.

Dr. D. F. Hurdman was married at Ottawa a few days ago to Miss Helen McNutt, daughter of Mr. C. H. McNutt, late of the crown timber office.

Mr. Charles K. Grigg, of Owen Sound, has been appointed one of the rangers of Algonquin park, to take the place of Mr. Timothy O'Leary, who has been appointed to the chief ranger-ship.

Lord Rosbery, ex-Premier of England, is said to be about to visit America to look after his investments, among which is the Southern States Land and Timber Company, which made an assignment several months ago.

F. W. Buchanan, who died recently in Winnipeg, was a son of one of the earliest lumbermen on the Ottawa, and who met his death suddenly when superintending the running of some of his crabs down the slides at the Chaudiere, near to where the Bronson mills now stand.

Mr. E. M. Fowler, the principal shareholder in the St. Anthony Lumber Co., whose mills at Whitney, Ont., have been recently set in operation, is a Chicago millionaire, whose wealth in millions is said to reach two figures. He recently visited Ottawa and Whitney to inspect the business of the company.

Mr. Arch. H. Campbell, youngest son of Mr. A. H. Campbell, the well known lumberman of Toronto, was married on the 8th of October, to Jessie Lefroy, only daughter of Senator MacInnes, of Hamilton. The groom is manager of the saw mills on the Musquash River. The LUMBERMAN extends congratulations and good wishes.

WM. HAMILTON & SONS, PETERBORO.

THIS firm's buildings cover an area of 3½ acres, and their machinery is of the most modern design. They employ 150 men and build everything in the machinery line.

The machine shop is in the form of a T, each leg being 300' x 40'. The boiler shop forms another leg, it is 150' x 30'. To this building are annexed the blacksmith shop 40' x 40', and the boiler and engine room. Across the street is the foundry containing perhaps the finest moulding shop in the country, 280' x 80' in size.

In the machine shop is the largest planer in Canada, its dimensions being 18' bed, 18' long, 8' square. The boring mill will take a 16' pulley by 6' face. The firm have turned out the gears, bridgetrees and shafting for the Soo pulp mill.

I WOULD not object to hold a few thousand acres of pine timber lands, if the statement I saw the other day as to the way it increases in value is correct. A lumber company purchased, in 1880, a tract in Upper Michigan for \$19,000, which is now said to be worth \$150,000. That is better than holding real estate in Toronto.

* * * *

I have heard wonderful stories of the durability of timber under water, but this breaks the record. I read in a Vienna paper that a pile supporting a bridge built across the Danube by the Emperor Trajan, seventeen centuries ago, was taken up and found to be perfectly sound. Nor is it a bad take-off on the yellow pine dealers, who claim great durability for their wood, when a contemporary remarks that they will probably claim that the pile was of that variety of wood.

* * * *

Some of the furniture dealers complain that the craze for bicycles has injured their trade, though just how they connect the two I do not quite see. The furniture men will simply have to take to selling bicycles, and some of them are doing so, and making them too. The craze, however, if it can be called such, does good in some directions. The introduction of the wood rim has caused an increased demand for the better class of elm, and also hickory, which is good for the hardwood men.

* * * *

THE West Coast lumbermen of the United States, who have formed a combine against British Columbia, which promises to assume still greater proportions, justify their action by the assertion that they cannot compete in their own market against British Columbia lumber. They say that the B. C. lumberman has not to buy his timber, but merely leases it from the government and pays for the logs as he takes them out, that his stumpage is only 25 cents as against \$1, and that his labor is cheaper. That may all be so, but the complainants have shut out cheaper labor by excluding the Chinaman.

* * * *

PHILADELPHIA has established as a municipal enterprise a commercial museum, which should be a most useful institution. It will contain collections of natural products from all the countries of the world which have entered the United States markets or may be available for them, and samples of manufactured products from foreign countries, which may serve as aids to their own manufacturers. There will also be a bureau of information and an experimental department. Canadian lumbermen should see to it that samples of their timber are placed in the museum. It may be the means of securing many good customers.

* * * *

I saw a curious report the other day which had been sent in to the Crown Lands Department. It is the diary of Ignace Dufond, who is engaged as a fire ranger by Mr. Wm. Mackay, of Ottawa, and whose district lies along the Amable Dufond river, which flows into Lake Nipissing. Dufond is paid partially by Mr. Mackay and partially by the Government, and one of his duties is to send to the department an account of his ranging during the season. It is written in the Ojibway language and contains many terse Indian expressions. He speaks of May as the flower month, June as the strawberry month, etc. It is clearly and neatly written.

* * * *

It appears as if the United States was going to have a grievance against Canada as a set-off to the lowering of the water in our harbours and streams by the Chicago drainage canal. A great power dam is being built at the outlet of the Lake of the Woods, which, it is asserted, will raise the water in the lake four feet. This, if it should turn out to be the case, will flood some low lands in United States territory at the south end of the lake, and kill considerable timber—70,000 acres would, they say, be destroyed. Government agents are on their way to investigate. I do not believe the damage would amount to anything like the figure stated, but our neighbors to the south are never modest when it comes to putting in a claim against England. They know she is rich.



MONTHLY AND WEEKLY EDITIONS

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ADVERTISING RATES FURNISHED ON APPLICATION

THE CANADA LUMBERMAN is published in the interests of the lumber trade and of 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 or 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 15 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.

THE DUTY ON BRITISH COLUMBIA CEDAR.

SOME time ago attention was called to a dispute which had arisen between a British Columbia shipping firm and the United States customs officials as to the classification of red cedar from that province. The latter held that dressed cedar siding was subject to duty, but the shipping firm appealed, with the result that the Circuit Court decided that the goods should be admitted free. The following letter, sent to the Collector of Customs, at Plattsburg, N. Y., will explain the matter.

(COPY)

TREASURY DEPARTMENT,
Office of the Secretary,
WASHINGTON, D. C., Sept. 26, 1895.

COLLECTOR OF CUSTOMS,
Plattsburg, N. Y.

SIR,—The Department is in receipt of a letter from the Attorney-General, dated the 21st ultimo, stating that in the case re F. W. Myers & Co., being an appeal from the decision of the Board of General Appraisers, (G. A. 2971), involving the dutiable classification of certain "red cedar," was decided adversely to the Government by the U. S. Circuit Court for the Northern District of New York, on July 3rd last.

The merchandise in this case consisted of certain dressed red cedar lumber, and was classified by you under the provisions of paragraph 181 of the act of August 28, 1894, which provides as follows: "House or cabinet furniture, of wood, wholly or partly finished, manufactures of wood, or of which wood is the component material of chief value, not specially provided for in this act, twenty-five per cent. ad valorem."

The importers protested, claiming that the merchandise was entitled to free entry under the provisions of paragraph 676 of the free list, which provides for "sawed boards, plank, deals and other lumber, rough or dressed, except boards, plank, deals and other lumber of cedar, lignum vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all other cabinet woods."

In passing upon the protest the Board of General Appraisers held that, inasmuch as the merchandise was "lumber of cedar," it fell within the exception mentioned in paragraph 676, and was not entitled to free entry.

On the trial of the case it was shown that the lumber was cedar lumber of the character generally used for building purposes, and that it was not suitable for cabinet uses, whereupon the court ruled that the exceptions referred to in said paragraph 676 related entirely to lumber generally known and used as cabinet woods, and that the decision of the Board of General Appraisers was erroneous.

In regard thereto, you are informed that it is the opinion of the Department that the decision of the court is correct, and that no appeal would have been taken had this Department received due notice of the said decision within thirty days of its delivery. You are authorized accordingly to take the usual course for refunding the duties exacted in excess and to apply these instructions to any similar cases that may be pending where all requirements of law as to protest and institution of suit have been fully complied with.

Respectfully yours,
(Signed) C. S. HAMLIN,
Acting Secretary.

It is worth noting that although the decision of the Circuit Court was given on the 3rd of July, the Treasury (i.e., Customs) Department was not notified of it till the 21st of September, so that collectors were not instructed till nearly three months after it was given, and in the meantime, doubtless, went on levying the duty. Of course those who paid will be entitled to a refund, but it is needless to point out that much inconvenience and annoyance must have been caused, to say nothing of the loss of trade. It does seem unfriendly on the part of the government of the United States to impose such needless restrictions on trade. Certainly when their own courts decide against them there should not be so much delay in giving effect to such decisions.

EDITORIAL NOTES.

THE United States government is not in the habit of extending facilities of trade with Canada, on the contrary, every hindrance is placed in our way, as witness the lobster can duty and the dressed lumber decision of the board of appraisers. However one courtesy has recently been extended, the treasury department having decided that invoices for timber or other goods, imported from places where there is no United States consul, may be certified by a reputable merchant, or by the consul of any friendly power. We suppose we should be thankful for small favors.

THAT it is an ill wind that blows nobody good is again demonstrated in the case of the present unpleasantness in Cuba, and lumbermen in certain lines of goods have to bless the political disturbances there. They have cut off the supply of mahogany, thus enabling holders to dispose of surplus stocks which had accumulated in New York and Boston during the business depression of 1893 and 1894. Present prices show an advance of from 5 to 8 per cent. over those of last year. While Mexican and Central American wood may take the place of Cuban mahogany to some extent, African never can, as it is softer and inferior in some other respects. So the row in Cuba is putting money into the pockets of dealers in this kind of wood.

A REASONABLE tariff of charges results in a larger revenue than when rates are fixed too high. The post office and street railway are proof of this. Recognizing this principle, a West Coast lumber journal remarks that if the transcontinental railways would reduce their lumber freight rates ten cents per hundred pounds, they would soon pass out of the hands of the receivers and become prosperous. Perhaps both freight and passenger rates on transcontinental roads are too high. The railway companies should be the best judges as to what is a paying rate. The lower they make it the more business they should do, within certain limits. Still it well known that the companies put on all the traffic will stand. We agree with our contemporary that a lowering of rates would result in a vastly increased traffic, and would pay.

PROF. Runnebaum, of Dublin, was sent some time ago by the German government to examine the timber resources of the Pacific Coast. He expresses his amazement at the waste that is going on, and says that if it is not stopped the present generation may live to

see lumber shipped from Germany to Puget Sound. While in Europe governments are seeking to make trees grow, in America they are destroying them—not only those suitable for timber, but also the saplings, which are the rightful heritage of future generations. Prof. Runnebaum's remark that the life of the forests is the life of the people is not a mere flourish of rhetoric. Not only as a direct source of wealth, but on sanitary and other economic grounds they should be preserved. The German professor is appalled at our wastefulness on this continent, and little wonder.

THE boom in South Africa, while it will undoubtedly result in disaster to somebody, is bringing prosperity to the West Coast lumbermen of America. Shipments of Douglas fir have jumped away up all at once. Tacoma, one of the principal ports on Puget Sound, nearly doubled its shipments by water in September over the previous month. There seems to be a large demand for mining props, and as these timbers are required of great length, Douglas fir is peculiarly well adapted for the purpose. Timber is also required for building, for Johannesburg, and other South African towns, are, like other mining towns, growing at an amazing rate. But the boom cannot last. It is a surprise that it has not already burst. There is no reason why our West Coast lumbermen should not make hay while the sun shines, but they would do well to be careful, for it is no advantage to sell lumber if they don't get paid for it and when the collapse comes someone is sure to be badly left.

MR. J. B. Tyrrell, of the Canadian Geological Survey, has been doing very important exploratory work for some years, in the far North and North-West, in connection with that branch of the public service. While giving special attention to the geological features of the country, he incidentally gathers a great deal of information respecting its soil, timber, etc. He has just returned from a season's work east of Lake Winnipeg, where he found a good tract of country, with deep, rich soil, not unlike that of the Red River Valley. This extends for about one hundred miles back from the lake. The whole country, however, has been burned over by great fires, which prevailed there from seven to ten years ago and destroyed all the timber. The charred trunks of the burned trees are a prominent feature of the landscape. What a pity such destruction should have been wrought. The timber would have been within easy reach of the Manitoba market, where lumber is and will be in great demand as the country fills up with settlers. And worst of all, these destructive fires were largely the result of carelessness.

CANADA has, it seems, vast areas of forest wealth yet unexplored. Dr. Bell, of the Geological Survey, who has just returned from his summer's work in the far north, reports having discovered a large river, not laid down in the maps, which flows into James Bay. He informs us that its banks are very heavily wooded with pine, spruce, tamarac, balsam, and white birch. The forest extends along the whole length of the river, several hundred miles. The axe of the lumberman has never been heard in these solitudes; nor has fire, which works such havoc in the forest, wrought any destruction. The river is larger than the Ottawa, and has numerous falls and rapids, furnishing splendid water power. The Crown Lands Department at Quebec say, however, that they knew of the river and the territory adjoining, which was explored last year by Mr. Henry O'Sullivan, acting superintendent of surveys, though his report has not yet been published. The river is known, Mr. O'Sullivan says, as the Nottaway, and it has two great branches—the Waswanapi and the McKiscan. There is an immense tract of splendid agricultural land in the region, and considerable spruce, tamarack, and Banksian pine. Hon. Mr. Flynn, Commissioner of Crown Lands, has taken possession of the territory on behalf of the Province of Quebec.

Messrs. Bertram & Co., of Toronto, are building a steam logger which is destined to supersede horses to a large extent in the woods.

THE EVOLUTION OF THE SAW MILL.*

By H. S. SKAGG, SPECIAL AGENT TRADERS' INS. CO., LANSING, MICH.

MR. PRESIDENT AND GENTLEMEN OF THE FIRE UNDERWRITERS' ASSOCIATION OF THE NORTH WEST:

For the past five or six years, from the Underwriter's standpoint, the saw mill has been regarded by many as a source of evil. It might be a thing of strength and beauty, but it could bring no joy or profits to the treasury of the insurance company. So we find that as early as 1892, immediately following the report of the Saw Mill Committee of the Michigan State Association, many companies sent to the local agent at Ukase, placing saw and shingle mills on the prohibitory list; such a cry was raised against the saw mill that the writer was induced to inquire somewhat into its history and learn if possible from whence it came.

The first mention I have been able to find of the saw mill, and by this is meant a saw used for cutting plank or boards, operated by power, is with the ancient Egyptians, who operated a ponderous blade of bronze with serrated edge. The log was placed on end and secured to posts driven in the ground; and to the ends of the bronze blade were attached ropes, and the heavy blade was drawn back and forth, and by attrition, wore its way into and finally through the log; but this gave way in time to improved methods and as the practical benefits of the saw mill became demonstrated, rewards were offered for its improvement, and it reached such a degree of perfection that the Greeks deified the inventor of the saw and called him "Perdix."

A manuscript of the Thirteenth century describes a saw mill operated by oxen treading a horizontal wheel; in 1322, a saw mill operated by water power was constructed at Augsburg, Germany, but was opposed by the hand sawyers, who feared that the machine would ruin their occupation, and consequently a mob burned it and then carried off the iron parts and each piece was buried or disposed of secretly, so that the thing should die and never be heard of again; but this did not stop the saw mill, and it slowly spread, notwithstanding it met with opposition from parliaments and people.

In the Fourteenth century England, by parliamentary enactment, made it a criminal offence against the King to erect a saw mill, because "The trees which might goe to make ye masts for ye King's ships would be destroyed," and in consequence, for over an hundred years the Dutch furnished England with all its lumber. The Dutch operated saw mills by wind power as early as 1410, the vast timber districts of Norway and Sweden invited the introduction of the saw mill as early as 1530. By this time the saw mill had become such an important factor that the Bishop of Ely, then British Ambassador to Rome, thought it his duty to give a minute description of a saw mill operating at Lyons in 1555; but such was the opposition in England to its introduction, that no one could get permission from the Crown to build a mill, but in 1663 a Dutchman secretly built a combined saw and grist mill—the first saw mill in England, near London—but it was never operated, as an infuriated mob of ship carpenters destroyed it and sought to kill the poor Dutchman, but he escaped. But so urgent was the demand for building lumber in England that one Houghton set before the public in speech and press, the advantages offered by the use of power saw mills. But it was not until 1767 that, at the request of the Society of Arts, a special decree was issued by the King, giving permission for James Stanchfield to build a mill at Limehouse. But the King refused to give it his protection, so great was the prejudice of the people, and it was destroyed by a mob, two years later.

So England continued to buy its lumber of the Norseman and the Dutch.

The colonies, in the New World, feeling the need of sawed lumber, sent to Holland for the machinery for a saw mill, the contract price for which was about \$180, exclusive of the charges "of ye ship which should transport." This arrived and was set up at the falls of the Piscataway, in 1620, and this is said to be the first saw mill in the new world. Shortly after, the Dutch West India Company constructed three saw mills in New York, to be operated by wind; one of these was located on what, now Governor's Island, and was leased for five

hundred boards yearly, one-half to be paid in pine and one-half in oak. The colony of Massachusetts Bay, feeling the need of lumber, made application to "The Court of Assistants" in London for the construction of a saw mill, and in a letter to Governor Endicott dated 1628, he is directed "to give approbation and furtherance to Francis Webb in setting up his saw mill, to be sent over in the good ship Lyons Whelpe."

Although hindered by restrictive and exclusive conditions of laws, the saw mill slowly extended over New England, and we find it entering the wilds of Maine and New Hampshire in 1634; into Vermont it went in 1636 and into Rhode Island in 1639. The state of the Wooden Nutmeg did not feel its presence until 1654, and New Jersey not before 1682. William Penn and Caleb Pusey brought over from London a saw mill ready framed, and it was set up on Chester Creek, and in a letter to the "Free Society of Traders" they declare that "the saw mill has been of great use and comfort in the colony in the cutting of planks and staves for the better construction of meeting houses and other buildings." This was in 1683 and is the first recorded saw mill in Pennsylvania.

Previous to 1645 all the saw mills in use in the colonies had been brought over from Holland or England, but in that year the Court of Massachusetts adopted a system of laws called the "Body of Liberties," which provided that "there should be no monopolies, but for new inventions a patent should be granted for a short time only." One of the first to apply for exclusive privilege under this first New England code was Joseph Jenckes, of Lynn, and on the 6th of May, 1646, the Court resolved that "In answer to the petition of Joseph Jenckes for liberty to make experience of his abilities and inventions for ye making of new invented saw mills to goe with water, for ye more speedy dispatch of worke than formerly, this petition is granted for fowerteen years, without disturbance by others, so that his study and cost may not be in wayne or lost."

You will see by this brief outline that the saw mill had hard work for existence; it was opposed by the hand sawyers, who thought it would take away their occupation and deprive them of labor, kings and parliaments enacted or declared laws against it, but so necessary and useful a thing to the people had it become, that it overcame all prejudice and law and took up its march with the pioneers who turned their faces toward the untrodden wilds of the west, and it was destined to cut its way through the vast forests and transform these into fields of grain and gardens of flowers.

General Lewis Cass in 1814 (then Territorial Governor of Michigan), with three others, built a small saw mill on a creek tributary to the Muskegon river, but this was short-lived, being destroyed by the Indians the year following. The first mill in Wisconsin was erected by consent of the Sioux Indians near Prairie du Chien, in 1819, but in one of the raids of the Winnebagoes this was burned a year or two later.

But Michigan, Wisconsin and the Great Northwest was to be populated, and the saw mill was to be an important factor in the work of building its towns and cities, and its growth and improvement has been general and sure, and from the bronze saw of the ancient Egyptians, the evolution and growth has been constant, until to-day we see the great creations, the result of modern science and skill; from the slow process of attrition we now see the saw cutting its way manily through the log at the rate of three hundred feet per minute.

No element in the development of the Northwest has had greater influence than the saw mill. It has constructed nearly all its railroads and it has built its towns and cities. It populated the east and west shores of Michigan and opened up its northern limits. It built the great cities of the Saginaw Valley, of Muskegon, and laid the foundations of the second city in the State, Grand Rapids.

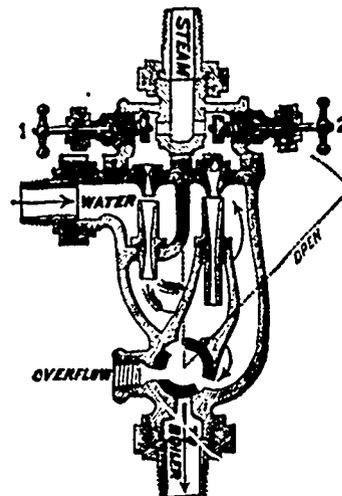
It built the cities of Oshkosh, Fond du Lac, and opened up the vast territory of Green Bay; it took up its line of march down the Father of Waters and laid the foundations of Moline, Rock Island and Davenport; in its march it has carried a boom of success and in its wake it has left its blackened trail; it has created more millionaires and in turn has been the cause of more poverty and suffering than any other industry; it has

built more cities and towns, it has peopled more counties as it advanced, and in its decline has left these to decay or blackened ruins.

Within the jurisdiction of this Association we are now feeling the influence of this declining industry, not only in the loss of premiums, but in losses by fire as well. This industry has always faced us with a moral hazard, even in its palmy days, but now in its decline, to many it bristles with sparks and is lurid with flame.

THE "NIAGARA" INJECTOR.

BELOW is a sectional cut of the "Niagara Injector," an injector which is rapidly becoming popular among steam users. This boiler feeder is manufactured in St. John, N. B., by W. H. Stirling. The machine has only been on the market one year and is now in actual use in most of the cities and towns throughout Canada.



THE NIAGARA INJECTOR.

The machine is complete in itself requiring no valves as will be seen by cut.

It can be throttled by means of valve No. 1 on suction side, so as to supply from full capacity down to required quantity, thus reducing the quantity of steam used, and delivering the water 90° hotter. The manufacturer states that this feature will save the price of the injector many times over in fuel alone, and that this fact has been demonstrated beyond doubt by the "Niagara" Injector being connected where other machines have been taken off.

Mr. Stirling has shipped these injectors to nearly every western city in Canada as far west as British Columbia.

The "Niagara" Injector is sold in Montreal by Samuel Fisher, 57 Sulpice street, and other dealers.

THAT PULLEY ACCIDENT AT AYLMER.

ON Saturday last The World published an account of a fatal accident at Aylmer, Ont., whereby Mr. J. D. McDiarmid of that place was instantly killed by the bursting of a poorly-constructed "wood split pulley." The Dodge Wood Split Pulley Co., of Toronto, while very much regretting the accident, are glad to say that the pulley in question was not one of their manufacture, and take this opportunity of advising the users of pulleys of the importance of seeing to it that they get a well-made, reliable article when purchasing. Every "Dodge" pulley manufactured is guaranteed strong enough for the heaviest double leather belt any width. To avoid accidents or mishaps ask for the "Dodge" patent and avoid inferior imitations.—Toronto World.

NO TIME TO READ.

THE following epistle from Messrs. Smith & Henderson, of Blenheim, Ont., has been given a conspicuous place in THE LUMBERMAN'S curiosity shop:—"Sir,—find inclosed Thirty Three cents in pay of Lumberman to Date pleas cancell our name of you list as the paper is no use to us we do not remember of Subscribing for it if you continue sending your paper we will not pay for it as we have no time to be bothered with such trash they have just been thrown aside and left for the waste basket so do not bore us with it any longer."

* Paper read before the Fire Underwriters' Association of the North West at Chicago, October, 1895.



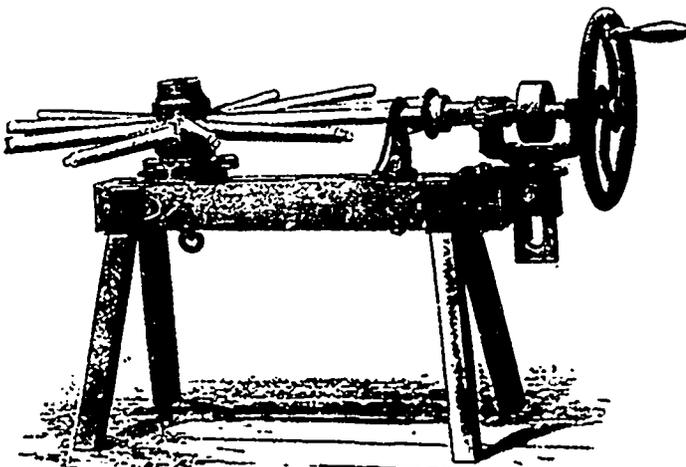
AN AUSTRALIAN AUGER.

MR. WILLIAM CALDWELL—an Australian inventor has brought out a new auger. The device, says a contemporary, is extremely simple, and consists in carrying at a sharp pitch the cutting surface of the tool spirally around the centre cone of steel which is left, and part of the body of the auger crossing each other at the top in two cutting surfaces. The cone answers to the central core of the auger and has a sharp, radial cutting edge. The chisel-shaped fork at the top keeps the pitch of the radial worm, and bites into the wood with the greatest ease and freedom. It has a wide or open pitch. The worm of the new auger performs another office which is new in wood boring tools. Everyone has seen with what ease a bent sapling is cut when the knife is drawn across the strained fibres; how much more easily a twig can be cut when bent than when the knife is used on the wood in its usual position.

The worm of Mr. Caldwell's invention performs substantially this same office in boring wood. Being wider than the one in use on the ordinary auger, it penetrates with a wedge like effect the fibres of the wood, and raises them at a certain strain or tension against the cutting surface of the auger. It will easily be seen how much more readily the wood is bored by this means than when the fibres of the wood remain in their natural position. Substantially Mr. Caldwell has succeeded, by this simple, yet extraordinarily effective device, in doing for augers what the gimlet pointed screw has done as compared with the old style of flat pointed wood screws. In boring with a $\frac{5}{8}$ auger of ordinary make, 29 turns are required to perforate the block; with even less force used, the new auger of Mr. Caldwell requires but 9 turns. Other trials have resulted in 39 turns of the ordinary auger with the old fashioned worm pitch, as against 13 by the new system.

SPOKE TENON MACHINE.

WE give an illustration in this issue of a spoke tenon machine, which is noted for the accuracy of its work. The head or main casting slides in an iron bearing bolted to the frame, with the slot accurately flamed.



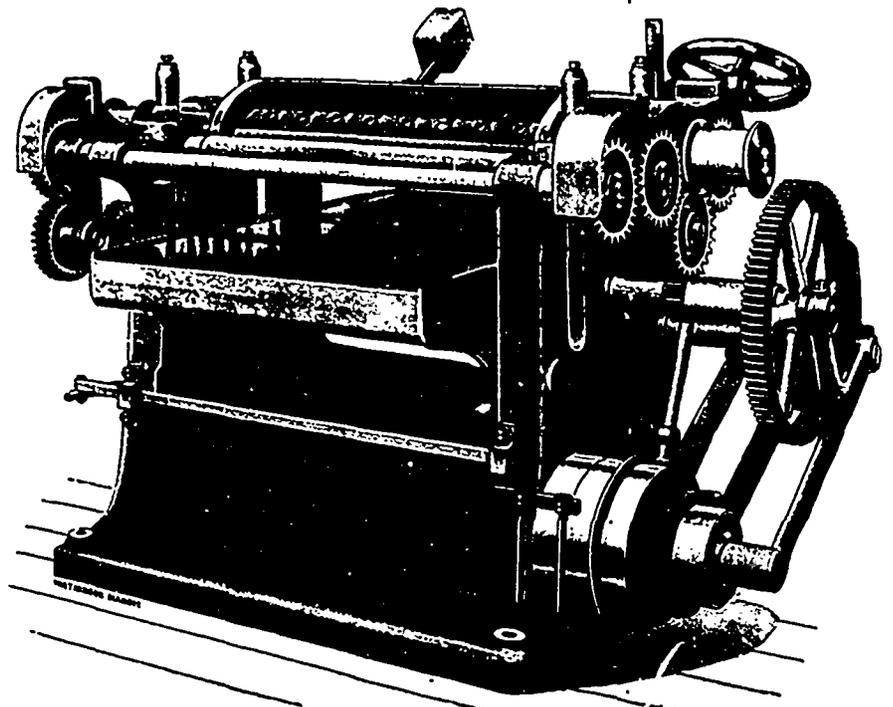
SPOKE TENON MACHINE.

Filloc boring attachments come with the machine. It is arranged to be operated by hand or power. The makers are the Silver Manufacturing Co., of Salem, Ohio.

¹ THE Belfast shipbuilders are on strike and over 3,000 men are out of employment.

DOUBLE GEARED ROLLER FEED PLANING MACHINE.

THIS machine, which is made by J. Sagar & Co., of Halifax, England, is for thickening panels and boards, and for general planing purposes. It is made for heavy continuous work, and all parts have been designed with this in view. A serious defect in the larger machines of this class consists in their not having sufficient feeding power to propel the timber through the



DOUBLE GEARED ROLLER FEED PLANING MACHINE.

machine. As made hitherto, the feeding arrangement has consisted of two top rollers,—one in advance of the cutters and one behind—these rollers being driven by gearing. There are usually two rollers of smaller diameter in the table, which simply act as anti-friction rollers to prevent the timber pressing too hard on the surface of the table, but have no effect in the sense of feeding power. Consequently, if the timber is wet or uneven in thickness, the rollers will not take it through, and it stops. If it stops only an instant the surface is spoiled, as the grooved roller digs a hollow the full width of the board—the cutters do the same—and the smooth delivery roller "dents" a slight hollow across, and the board must go through the machine again. In the new series of planing machines Messrs. Sagar are now making, and of which an excellent idea is given by the accompanying illustration, the bottom rolls are the same diameter as the top ones, and both top and bottom rollers are driven by gearing, so that double feeding

power is given, and makes it nearly impossible for the stuff to stop in its passage through. Another improvement is that in the larger sizes are placed a driving pulley on each end of the cutter-block spindle, so that in doing the heaviest work the torsional strain is reduced to a minimum, and the cutters revolve at a uniform

speed, consequently the finest class of planing can be done with a quick feed.

The spindle and cutter block of this machine are one steel forging, and the bearings are phosphor bronze, one end being 6 in. long, and the other end 8 in. long. The cutter head has a marked improvement in the style of the "lip," which is planed of such a shape that the knife always binds on the edge, and prevents tearing in cross-grained or knotty timber. The cutter block is also of such a shape that the cutters give a shearing cut, although quite straight in themselves and easy to grind. All four feed rolls are made of steel, and the gearing for driving them is extra strong and driven by cone pulleys, having three changes, so that the speed can be arranged to suit various classes of work, slow or quick feed, as required. The table works in long planed slides, with an adjustable strip for taking up any wear or shake which may occur, and is raised and lowered by means of a hand-wheel placed in a convenient position, while a figured gauge and pointer is provided for instantly setting the table to produce any required thickness of board. It is made in four sizes, viz: from 20 to 30 in. \times 7 $\frac{1}{2}$, the size of pulleys

on the countershaft varying from 10 \times 4 $\frac{1}{2}$ in. to 12 \times 6 in., according to size.

AMONG THE BASKET MAKERS.

IN the stony valleys among the hills of Connecticut where the boulders lie too thickly for the plowman ever to disturb the soil, one will occasionally run across a little hamlet, where the basket makers spend their quiet but useful lives. In these little communities the craft of basket making has passed from father to son for many generations, and, doubtless, will for many more, for, in spite of modern invention, the good white-oak basket promises to be as much in demand in the twentieth century as now. Sheet iron or aluminum, paper or tropical fiber, may do some part in solving the basket problem of the future, but alongside of these modern makeshifts will be found the tough products of the almost irreclaimable stony forests of the mountain regions.

Quaint people, easy going, shrewd and philosophical, may be found in these little basket boroughs, and queer names cling to the localities themselves, as one will find in driving through the country. Now he has to journey through a "Devil's Den," and now he picks a toilsome way between "Hard Scrabble" and "Dantown," or plunges down to "Woodchuck Hollow" to emerge a few miles further on the top of "Shaving Ridge."

Sometimes there will be a large, rude shop, surrounded by one-storey gray cottages of the basket makers. In the shop they will carry on work in common, saving expense for fuel in winter. Other families will have a shop by themselves. Outside the door one will see frequently

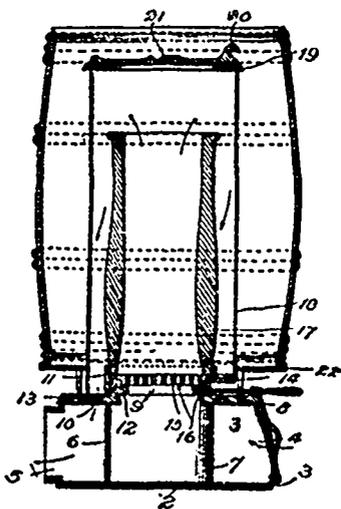
air of oxen hitched to a heavy wood sled with a load of basket timber, logs cut about nine feet in length. On the walls inside one sees an assortment of drawing knives, some of them polished, worn and ground down to a narrow strip of steel, ready to break after many years of use. There are wooden bench vises, where the men sit to shave off the splints, and overhead one will see rows of bent white hickory handles, looking like rows of horseshoes in a blacksmith's shop.

No little skill is required to split up the wood so as to waste scarcely any, to shave out the tough, upright strips and to bend them in proper shape, to split out the "filling" and deftly weave it in. White oak, black oak, pin oak, hickory, white walnut, pignut, white ash and black ash all enter into basket making, more or less, but white oak is the standard wood.

The basket makers who prepare their own material look with contempt on the baskets made in factories, where the splints are cut out by machinery. The machine necessarily often cuts across the grain of the wood, causing a weak place in the basket. The factory baskets are much cheaper, of course. One can buy a bushel basket of this kind for 35 cents, when a hand-made basket, strengthened and bound with hoop iron, may cost \$2; yet one of the latter may outwear ten of the former; the one may weigh five pounds, the other ten to twelve. Sometimes an order will come for a big wool basket, to hold twelve to twenty-five bushels, or a dealer may want a few hundred of the conical bushel baskets used by the market gardeners of Long Island and New Jersey.

It is an exciting day in the basket village when one of the big rick waggons is loaded up with baskets to go to the steamboat landing or railroad station. There may be consignments in it from half a dozen families to half a dozen dealers. And there follows an interesting suspense as the wagon rolls out of sight till the check comes back from the New York merchant through the mail. Meanwhile the big wagon makes its way down to the shipping point, discharges its load, and the driver sets about to lay in supplies of dry goods and groceries for the return trip.

NEW CANADIAN PATENTS.

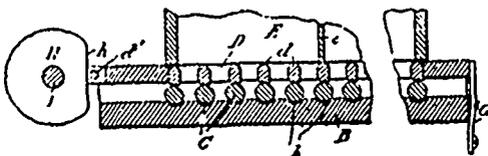


BARREL HEATER.

Patentee: Charles G. Menzel and Julius C. Einmitt, both of Minneapolis, Minnesota, U.S.A., 12th August, 1865; 6 years.

Claim.—1st. The combination, in a barrel heater, of a base, the shell 18 supported thereby, the ring 12, the fire-pot 17 supported by said ring, the grate 15 arranged within said ring beneath said fire-pot, means for shaking said grate, the flues or openings 13, and the wall of said fire-pot being thicker near the base than at the top thereof, for the purpose set forth. 2nd. In a barrel heater, the combination, of a base, containing the independent ash-pit, the smoke outlet 5, the shell 18 arranged above said base, the ring 11, and flues or openings 13, the fire-pot 17, the grate 15 beneath the same, the casting 19 for closing the top of said shell, and said casting being provided with the openings 21, for the purpose set forth. 3rd. In a barrel heater, the combination, of the base containing the independent ash-pit, the smoke out-

let casting 5, the ring 11 arranged over a central opening in the top of said base, the parts 10 supporting said ring, the ring 12 having an inwardly turned flange and arranged within said ring 11, the grate 15, the fire-pot supported by said ring 12, the flues or openings 13, the shell 18, and a cover for closing the top of the same, substantially as described. 4th. The combination, in a barrel heater, of the base, the fixed ring 11 surrounding an opening provided in the top of said base, the shell 18, the movable ring 12, the grate 20, means for shaking the same, the openings 13, between said ring 11 and said shell, the fire-pot 17, and a barrel rest 22 provided outside of said shell, substantially as described. 5th. The combination, in a barrel heater, of a polygonal base, comprising the bottom 2, and the side walls 3, provided with the front and rear openings, the smoke outlet casting 5, the casting 8, the shell 18, the ring 12, the fire-pot 17 supported by said ring, the grate 20, arranged within said ring 12 beneath said fire-pot, the flues or openings 13, and the barrel rest 22 supported by said base substantially as described.



MATCH RACKING MACHINE.

Patentee: Edmund George Shepherd, Edwin Septimus Leatham and Charles Derbishire Chitty, all of Ottawa, Ontario, assignees of John Daniel Mantion, Hull, Quebec, all of Canada, 27th August, 1895; 6 years.

Claim.—1st. In a match racking machine, the combination of a stationary plate, an upwardly projecting ring or flange secured to each longitudinal edge of said plate provided with a series of notches at the level of the upper surface of said plate, rollers journalled in said rims between and clearing said notches and extending across said plate, a frame secured slidably in said rims by runners adapted to move in wider grooves in said rims so as to allow vertical play and provided with slats parallel to said rollers and adapted to rest at the top of the same and in a little lower position in the spaces between them, a spring pressing said frame longitudinally in one direction, a vibrating cam disc with flat space against which said frame is pressed by said spring and carried upon a shaft receiving suitable motion and a hopper held above said frame, substantially as set forth. 2nd. In a match splint racking machine, the combination of a stationary plate B provided with a series of shallow segmental grooves extending transversely across the same, an upwardly projecting rim or flange at each longitudinal edge of said plate provided with a series of notches each adapted to pass a match splint between each groove in the plate and level with

upper surface thereof, a small roller journalled in said rims between each pair of said notches and clearing the same and for which the grooves in the plate form a suitable race, and a series of slats parallel to said rollers and forming a grid above them and held slidably and with vertical play on and between said rollers, substantially as set forth. 3rd. In a match racking machine, the combination of a stationary plate B, rims B', at the longitudinal edges, a series of notches b', in said rims at the level of the surface of said plate, and a series of rollers C journalled in said rims between and clearing said notches, substantially as set forth. 4th. In a match racking machine, the combination of a stationary hopper, a transversely grated bottom held slidably under the same in guides allowing vertical play, a spring pushing said grid longitudinally in one direction and a vibrating cam disc with flat space against which the other end of said grid is pushed by the spring, substantially as set forth.

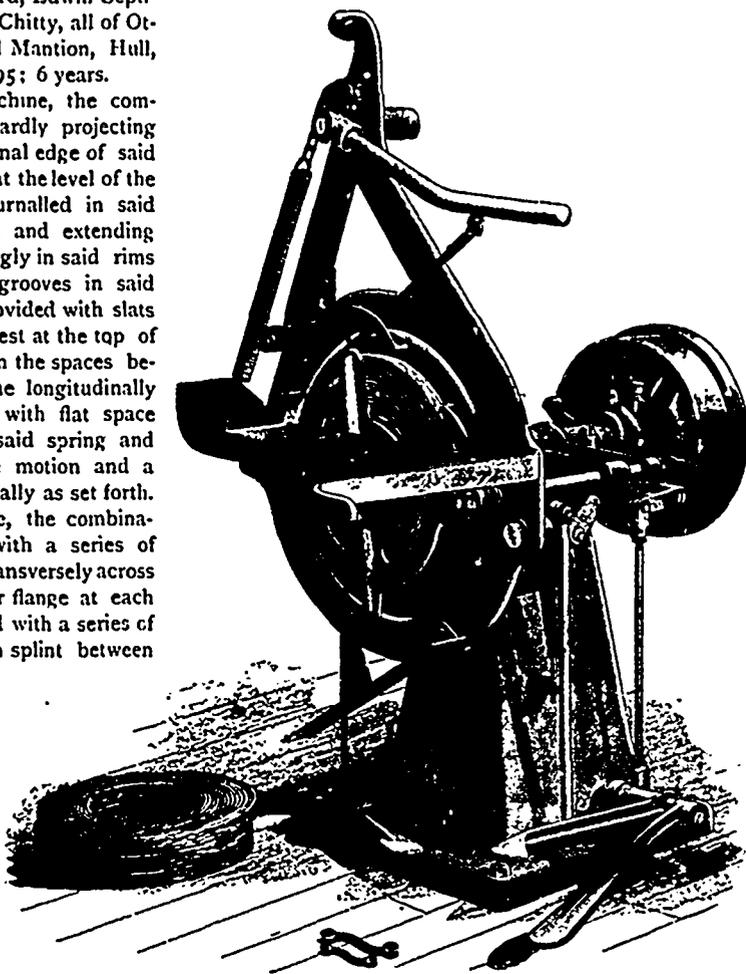
Patents for match making machines have been granted to (1) Levi H. Montross, Camden, New Jersey, and Adolph Segal, Philadelphia, dated 26 Aug., 1865; and (2) Henry A. La Chicotte and Walter S. La Chicotte, of Brooklyn, N. Y., dated 27 Aug., 1895.

ELECTRIC HOOP-COILING MACHINE.

THE engraving represents a new hoop-coiling machine, made by the Defiance Machine Co., at Defiance, Ohio, designed for accurately coiling slack barrel and keg hoops of various sizes and lengths at a rate of from 15,000 to 18,000 per day. It is constructed on a heavy iron frame cast in one piece, with a broad floor base to overcome vibration and jar to the working parts. All link and lever joints are provided with lugs which are turned true and fitted into reamed holes and held in position by washers, entirely relieving the cap screws from strain.

The quick-opening gate facilitates the removal of defective hoops, and gives free access to the coiling drum and parts. By an ingenious pneumatic cushion the carriage is returned after having discharged the finished coil of hoops, without jar or noise, which greatly increases the life of the machine, and enables the operator to perform more and better work; weights and bumpers as a relief have proved unsatisfactory.

The operation of this machine is exceedingly simple. With no complicated parts or adjustments, it can be successfully handled by cheap labor. One end of the first hoop to be coiled is entered into an open jaw in the revolving drum, while the machine is in operation, which firmly holds the end of the hoop to the drum when coiled around it; each succeeding hoop is fed into the machine at the proper time to allow the preceding hoop to form a lap. A steel band is used to prevent fracturing or buckling the hoops and bind the coil firmly together.



HOOP COILING MACHINE.

The outer end of the last hoop is held to the coil by a single nail, a supply of which is kept in the convenient nailing box attached to the support rail. When the coil is completed it is instantly discharged from the machine by the weight of the operator's foot upon the pedal.

By a new and novel arrangement the steel band or coiling strap may be removed for examination or repairs, in a moment's time, by simply releasing a set-screw. The friction clutch for driving the machine is at the rear of the machine and is started and stopped by a convenient foot treadle; it is 18 inches in diameter, 4 inches face, and should run 100 rotations per minute; it can be belted to from above, below, or either side.

THE ALLIGATOR STEAM WARPING TUG.

LUMBERING operations have of late years been driven so far back among ranges of small lakes connected by narrow and uncertain outlets, that it has become a serious question with many lumbermen how to get their timber and logs over these lakes during the short season of high water. The old horse capstan has been found to be too slow, besides being awkward and involving much labor and loss of time in moving it from place to place.

We take much pleasure in printing herewith an illustration and description of an invention, called the Alligator Warping Tug, which is intended to take the place of the Capstan. It has been in successful operation during the past four years on the French River and between Restoul Lake and the Georgian Bay.

It will climb hills and go through swamps and woods, or up small streams from one lake to another. After warping down a boom of logs, it will return with the empty boom, doing the work cheaply and thoroughly, with a great saving in time and number of men.

It is also useful in taking supplies to the lumber camps, or in towing scows bearing horses and provender.

One of these tugs will pay for itself in a single season; such is the testimony of those who are using them.

The steam warping tug, of which an illustration is given on this page, is a steam boat and steam winch combined. The engine can be thrown in gear to drive the paddle wheels, or to drive cable drum, which holds from half a mile to a mile of $\frac{3}{8}$ cast steel wire cable. The hull is built scow shape and is 37 feet long and 10 feet beam, decked all over, with berths for the sleeping accommodation of four men arranged in the bow. The bottom is of 3 inch white oak plank, the sides of pine 6 in. thick, laid in white lead. At intervals of 12 inches, $\frac{3}{8}$ inch bolts run through from top to bottom. On the bottom of the boat two runners are placed, 6 feet apart, each runner being 6 x 8 inches, shod with $\frac{3}{4}$ x 8 inch steel or iron. Part of the bottom and all up the bow of the boat is also covered with steel boiler plate. A steel drum is placed on the bow, over which the cable runs in paying out, or winding in. There is also a carriage in the bow with two shive pulleys, which is moved backward and forward across the bow by a screw and drive chain, operated by the engineer from the inside. This arrangement winds the cable level on the drum.

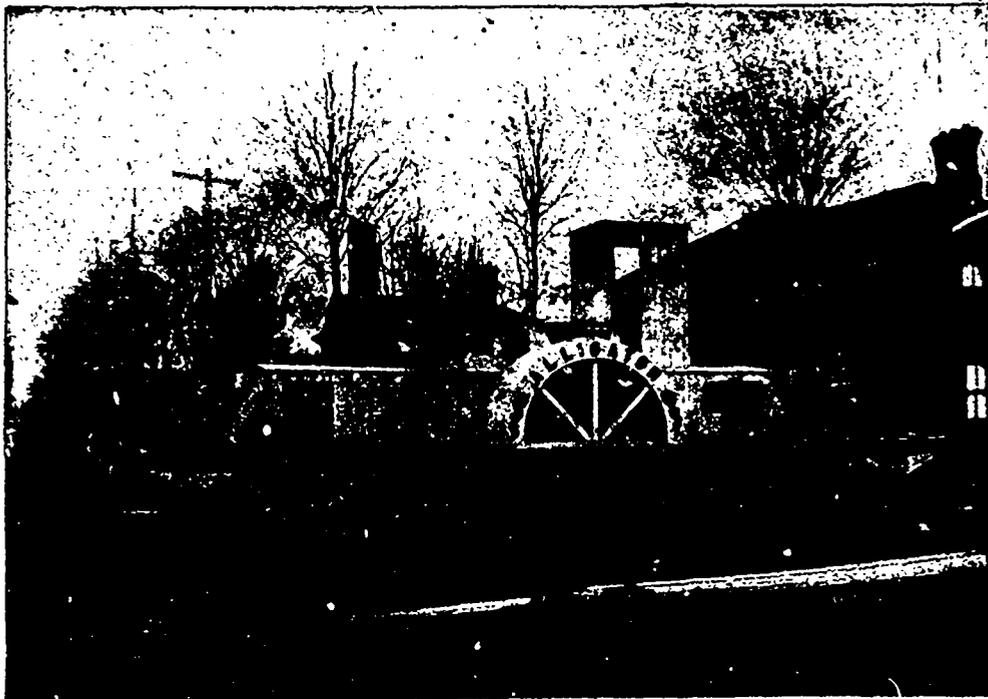
The boiler is hung on an axle in the centre, a screw being arranged on the front end to enable the fireman to tip the boiler forward or back, in order to keep it level when going up or down hill, in crossing a portage. The boiler is of special design, 22 horse power, and will furnish steam to warp 10 hours with $\frac{3}{4}$ of a cord of good dry wood of any kind. The engine is 9 x 9 inches, and will make from one to three hundred strokes per minute, propelling the boat from 5 to 6 miles per hour, either backward or forward, as it may be required in warping.

In warping, the boat can be used in either of the following ways. First—the bow can be run up to the boom and the cable made fast to it; then run backward until the cable is all paid out, made fast to a rock, a tree on the bank, or any suitable anchorage, the cable wound up, the raft moving, the boat standing still. Or the boat can be run to the shore, or rock, the anchor dropped with the cable made fast, backed up to the raft, made fast with the stern line, the cable wound in and the boat and raft thus moved together. This last method of warping is the best, particularly where a sack boom has to be rolled through narrows, as

fresh holds can be taken along the boom without disturbing the anchorage until the boat and raft have been hauled up to it; then the anchor can be raised and a fresh hold taken on another snub on shore, as may be most convenient. The boat is sufficiently powerful to move a bag-boom containing 60,000 logs, when there is no wind to interfere, or 30,000 against a head wind.

In crossing portages from one lake or stream to another, it is not necessary to make and grade a level road for the boat to move over. All that is required is to place logs and green skids across under the runners, about 6 or 8 feet apart, to keep the shoeing from grinding on the rocks or earth. Attached to the bow of the boat, near the bottom, is a heavy chain, to which is fastened a single block pulley; another single block is taken to a tree on the side of the road and made fast, then the cable is run out, passed round the block at the tree, brought back to the boat and passed round the block attached to the bow chain, then taken to a tree opposite the first on the roadside. This arrangement causes the boat to travel between these anchorages, and a straight course can be kept without dodging the anchor trees. In this manner the boat can be moved a mile a day with ease.

These boats draw about 28 inches of water to the bot-



THE ALLIGATOR STEAM WARPING TUG.

tom of the runners. They can be moved up a hill or incline of one foot in three. The helm is hung with a hinge, so that in going over booms or logs, it will lift up, dropping back to its former position of its own accord.

The manufacturers, Messrs. West & Peachy, Simcoe, Ont., are now at work on the largest machine they have ever turned out. It will be of 40 h.p. (double the power of the ordinary machine) and is to be shipped to South America. The following lumber firms among others have this novel machine in use.

Joseph Jackson, Simcoe, Moar Lumber Co., Detroit, Mich.; R. H. Klock & Co., Klock's Mills, Ont.; J. W. Howry & Sons, Saginaw, Mich.; McLachlin Bros., Arnprior, Ont.; Gilmour & Co., Trenton, Ont.; Shepherd & Morse Lumber Co., Upper Ottawa Improvement Co., A. Loimden, J. R. Booth, Ottawa, Ont.; Buell, Hurdman & Co., Gilmour & Hughson, Hull, Que.; Robert Booth, Hale & Booth, Pembroke, Ont.; Saginaw Lumber Co., Saginaw, Mich.; John Ferguson, Renfrew, Ont.; Ontario & Western Lumber Co., Rat Portage, Ont.; Hardy Lumber Co., Trout Creek, Ont.; Barney & Stevens, Honda and Verna; Transporting Co., South America.

"Although," cried the revolving saw,
"I do not understand
The games these foolish mortals play,
Still I can take a hand."

THE ST. JOHN, N. B., EXHIBITION.

A REPRESENTATIVE OF THE LUMBERMAN who visited St. John, N. B., during the recent exhibition held in that city, found much to interest him and visitors generally, at this exhibition. The exhibits were numerous and in great variety, and were arranged in a manner well calculated to attract the attention of visitors. The attendance was very satisfactory. Without mentioning the many exhibits which might not have any special interest for LUMBERMAN readers, a few particulars may be given of those exhibits which relate specially to the lumber and wood-working industries, with which our readers are more particularly connected.

On the ground floor of the main building, the Small & Fisher Co., Ltd., of Woodstock, N. B., had in operation one of their improved shingle machines. These machines attracted much attention, and are said to give excellent satisfaction where they are in use.

Messrs. Cowan & Co., of Galt, Ont., had a large exhibit of wood-working machinery. Mr. Cowan, who was in charge of the exhibit, intimated to THE LUMBERMAN representative, that little, if any, of the machinery comprising the exhibit would be brought back to Ontario, as it had nearly all been sold.

The McFarlane, Thompson, Anderson Co., of Fredericton, N. B., exhibited their Dundas shingle machines, which are well known throughout the Lower Provinces. A representative of THE LUMBERMAN recently visited a mill in these Provinces where thirteen of these machines were in satisfactory operation.

A large space on the floor of the main building was occupied by the St. John branch of the James Robertson Co., Ltd., of Montreal, and contained a fine display of circular, gang and other saws from the company's factory in St. John, together with exhibits of the various lines of goods which the company manufacture. The exhibits were in charge of Mr. J. Robertson, superintendent of the company's business at St. John.

Messrs. Fowler & Rankin, of St. John, N. B., showed a full line of edge tools, and car and carriage springs, of which they are manufacturers. The company, who are successors

to Josiah Fowler, had men at work in the building, forging and welding axes. Mr. Rankin stated to the representative of THE LUMBERMAN that the company were pushing for business in all parts of the Dominion.

A very creditable exhibit of saws was made by the Lutton Saw Co., of St. John.

Messrs. Walter Wilson & Son, of St. John, also had a creditable exhibit of saws of their manufacture, including a large band mill saw.

An interesting exhibit of edge tools was made by the St. Stephen Edge Tool Co., of St. Stephen, N. B.

DIVIDING THE WORK.

OWING to the increase of lumbering on the north shore of Lake Huron, the Sault Ste. Marie Crown Timber Agency has been divided. The eastern part of the present agency has been made into a new one and Mr. Edward Garrow appointed as agent, with residence at Webbwood, Ont. The western agency will remain under the charge of Mr. P. C. Campbell, with office at Sault Ste. Marie.

—There is a great scarcity of mill hands in the south.

—Bacroft & Sloan, of Flesherton, Ont., are going to build, late this fall, a new mill on the site of the one lately burned. The mill will be 24 x 50 ft. with a capacity of a daily output of 10,000 feet, and will be fitted with modern equipments

THE CANADIAN LUMBER INDUSTRY.

THERE was a time when, to quote the language of a certain class of Englishmen, Canada was known as a "blawsted wooden country." The imputation, though made in cynicism, had much evidence behind it, for in the early history of the country the forests of Canada extended in an almost unbroken stretch from the Atlantic ocean to the head of Lake Superior—a distance of 2,000 miles.

The Dominion of Canada has an area of not less than 3,456,383 sq. miles; that is, it is 439,783 sq. miles larger than the United States, if Alaska be excepted, and almost as large as the whole continent of Europe, which has 3,756,002 sq. miles. This territory is divided into provinces as follows: Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward Island, Manitoba and the Northwest Territories, and British Columbia, all of which are rich (in some measure at least) in forest wealth. The total population of Canada, according to the census of 1891, is 4,833,239.

Next to agricultural pursuits, in which 56 per cent. of the population are engaged, lumber is the most important industry of the Dominion. There is an invested capital in the business of nearly \$100,000,000, and an annual wage-list of over \$30,000,000, with an output valued at almost \$110,000,000. Of saw mills and wood-working establishments there are about 6,000, giving employment during the season to not less than 15,000 men.

The value of forest products, calculated from the census returns of 1891, is given by Mr. Geo. Johnson, government statistician, as \$80,071,415. For the fiscal year 1890-91 the imports of wood articles amounted to \$3,132,516, while for the same period the exports were \$27,207,547, leaving for consumption in Canada \$55,996,384, or a value of \$15.59 per head. The census returns show an aggregate of 2,015,073,072 cu. ft. as the total cut of the year. About 30 per cent. of this is exported, leaving 1,431,551,150 cu. ft. for the annual home consumption. This is equal to 296.2 cu. ft. per head of the population, the estimate of Mr. B. E. Fernow for the United States being 350 cu. ft. per head.

As each of the provinces of Canada has an individuality of its own, geographically and physically, so has each its own individuality as a lumber centre. Canada's reputation as a "wooden country" rests primarily on the fame of its white pine (*pinus strobus*) in the province of Ontario. It is improbable that any one has learned anything of the lumber history of this country without having obtained a knowledge of the immense pine resources of the Ottawa valley and the Georgian Bay districts. Ontario is spoken of as the great white-pine field of the Dominion, just as Michigan, Wisconsin and Minnesota go into history as the great white-pine states of the American Union.

The ownership of Canadian forests is, for the most part, invested in the provincial governments, and in Ontario, in particular, the management thereof constitutes the most important department of government. The department of crown lands, which has the administration of the timber resources of the province, is the great money-making department of Ontario, and political opponents oftentimes inquire where the revenue of Ontario will come from when its forest products are exhausted? This department has been for many years under the control of Hon. A. S. Hardy, commissioner of crown lands, a gentleman whose name is frequently mentioned as the probable successor to the present premier, Sir Oliver Mowat.

The regulations respecting timber limits in Ontario are of importance to every one interested in this industry. Among other things they provide as follows:

That the commissioner of crown lands, before granting any license for new timber berths (not including the lands) in the unsurveyed territory, shall, as far as practicable, cause the section of country where it is intended to allot such berths to be run into townships, and each township, when so surveyed, shall constitute a timber berth, but the commissioner may cause such townships to be subdivided into as many timber berths as he may think proper.

The berths or limits, when so surveyed and set off, and all new berths or limits in surveyed territory, shall be explored and valued, and then offered for sale by public auction at the upset price fixed by such valuation, at such time and place, and on such conditions

and by such officer as the commissioner shall direct by public notice for that purpose, and shall be sold to the highest bidder for cash at the time of sale.

All lumber licenses are to expire on the 30th of April next after the date thereof, and all renewals are to be applied for and issued before the 1st of July following the expiration of the last preceding license, in default whereof the right to renewal shall cease and the berth or berths shall be treated as forfeited.

No renewal of any license shall be granted unless or until the ground-rent and all costs of survey and all dues to the crown on timber, saw logs, or other lumber cut under and by virtue of any license other than the last preceding, shall have been first paid.

All timber berths or limits shall be subject to an annual ground rent of \$3 a square mile, payable only in advance before the issuing of any original license or renewal.

All timber, saw logs, wood, or other lumber cut under any license that may be hereafter granted shall be subject to the payment of the following crown dues: red and white pine timber, per cu. ft., \$0.02; red and white pine saw logs and boom timber, per standard of 200 ft. board measure, \$0.20.

Operating under these regulations, which are closely enforced by the government, the cut of white pine and Norway pine lumber in Ontario amounts to about 700,000,000 feet a year; taking the figures for the year ending June, 1893, the cut was 677,525,000 feet.

It is somewhat difficult to estimate the pine timber area of Ontario. A return of the government of Ontario, brought down in 1893, says:

No estimate has been made of the quantity of pine timber standing upon the whole crown domain. There is a great stretch of territory lying north of the 48th parallel of latitude and the northern limit of Ontario and between 85th west longitude and the easterly limit of the disputed territory, in respect of which no estimate has been made at all, containing 89,000 sq. miles or thereabouts, much of which, it is known, is pine bearing, but other portions are not, and as to some other parts there is no information. What has been done is to take certain areas known to be pine bearing and apply a reasonable estimate to them, as follows:

West of the Ottawa River and north-west of the limits sold in 1872 between 80 and 85 west longitude, and extending north to the 48th parallel of latitude.....	24,000
Between Ottawa Agency and sale of 1881 in the Nipissing District.....	410
	24,410
	24,410
	Feet.
To this area an average of 1,000,000 ft. B. M. to the mile was applied.....	24,410,000,000
Carl. DeLans, late deputy minister of the interior, estimated the timber in the disputed territory at.....	26,000,000,000
	50,410,000,000
There is now subject to license in Ontario about 20,000 sq. miles, which has been estimated to contain 500,000 ft. to the mile, equalling.....	10,000,000,000
	60,410,000,000
This gives a total on the territory estimated of 60,410,000,000 ft., exclusive of the territory of which no attempt at an estimate has been made as above stated.	
	VALUE.
The bonus value of 50,410,000,000 ft. at \$1.50 a thousand equals.....	\$ 75,615,000
The dues upon this at \$1 a thousand.....	50,410,000
	\$ 126,025,000
Add for duty on 10,000,000,000 ft., estimated on licensed lands at \$1 a thousand.....	10,000,000
	\$136,025,000

White pine limits in Ontario, though scattered through many hands, are largely held by the big lumbermen of the province, and of late years a very considerable part has gone into the possession of United States lumbermen.

Mr. J. R. Booth, of Ottawa, has obtained fame as the largest lumberman in the world. He is an extensive owner of timber limits, and until a little more than a year ago operated what was generally conceded to be the largest saw mill in the world. This was destroyed by fire some twelve months since. Messrs. Gilmour & Co., of Trenton, hold a very prominent position as owners of timber limits, as well as saw millers. At the government sale of limits, two years ago, this firm was a heavy purchaser, paying the largest price for a timber limit ever known in Ontario. Among other large owners may be named: The Bronson & Weston Co., of which Hon. E. H. Bronson, a member of the Ontario government, is principal; W. C. Edwards & Co., Buell, Hurdman & Co., Robert Thomson & Co., The Georgian Bay Lumber Co., and The Muskoka Mill and Lumber Co.

When, three years ago, the duty on lumber going into the United States was reduced from \$2 a thousand to \$1 a thousand, a great stimulus was given to the lumber

industry, and there followed one of the best years that Canadian lumbermen had enjoyed for a long time. But this reduction in the duty on sawn lumber carried with it the free export of lumber in the logs into the United States, and this immediately built up an immense business in the shipment of logs by raft from the Georgian Bay shores to those of Michigan. These shipments have grown, until in the last year something like 400,000,000 ft. of logs were exported from the Georgian Bay shores to Michigan mills.

When the Wilson tariff became a law, conditions again changed, and the Ontario holdings of United States lumbermen again increased. To-day a large extent of the timber limits of Ontario is in the hands of J. W. Howry & Sons, J. T. Hurst, Albert Park, A. T. Bliss, General Alger, Saginaw Salt and Lumber Co., and other well known Michigan lumbermen.

To what extent the change in the lumber tariff will induce American holders of Canadian lumber to build mills in Canada is a moot question. All lumber being free, it is as easy to ship the sawn lumber as that in the log, and this being the case, it is contended that United States lumbermen will find it an advantage to own mills near the limits, cut their logs there, and ship the lumber to their own country. It is known that J. W. Howry & Sons, who will this season rank among the largest operators in Ontario, have erected, or come into possession of, large saw mills in the province. At Midland a large mill is cutting entirely for an American concern, and along the Arnprior, Ottawa and Parry Sound Railway, 140 miles from Ottawa, the St Anthony Lumber Co., owned by F. C. Whitney, of Minneapolis, and other American lumbermen, has built one of the largest mills on the continent.

There are problems in connection with the Wilson tariff that may change the complexion of affairs. A change in government in the United States might lead to a reversion of free lumber, though the manner in which investments are being made in Canadian limits by United States lumbermen, who ought to understand the situation, does not give much force to this theory. Again, the question has been raised, only within the present season, whether dressed lumber, which is exempt from duty, includes flooring and other lumber that is matched and grooved. The board of general appraisers of the United States has ruled against this rendering, and, if the ruling is sustained, it will be a barrier to the establishment of planing mills in Canada. But, on the whole, there is reason to believe that free lumber has come to stay, and that it will, aside from an exception or two, operate in the interests both of Canadian lumbermen and of their congeners in the United States.

While white pine holds the lead among the woods grown in Ontario, there are other timbers possessing good commercial value. Some years ago Ontario was rich in many of the most useful hardwoods; there was hardly a county in the province that did not contain a good supply of maple, elm, ash, beech and birch. But to-day these woods, though fairly abundant, are to be found only in small quantities. The extent to which the forests have been depleted of some of the most valuable hardwoods gives to advocates of forest protection a most forcible text. The late clerk of forestry for the province of Ontario, Mr. R. W. Phipps, has pointed out, in way of illustration, that in Kent county oak that sold 15 and 20 years ago at \$4.50 per thousand feet, could now be marketed at \$25 per thousand, and walnut, which then brought only \$14 per thousand feet, would to-day command \$100.

Crossing the border line to the older province of Quebec, we are brought face to face with lumber conditions of a different character. The chief lumber riches of Quebec, as also those of New Brunswick, consist of spruce. And whereas Ontario finds its principal and natural market for its forest products in the United States, Quebec's shipments are chiefly to Great Britain. There are several large concerns that look solely to the United Kingdom for their market. The area under license in Quebec, according to the statement of the Hon. J. K. Ward, one of the oldest and most intelligent lumbermen of the province, is 48,000 miles, producing of spruce and pine logs 6,170,000 ft., equalling 683,000,000 ft. B. C.; of pine, spruce and birch timber, 18,500,000

ft. B. M.; of railroad ties and other wood, 22,500 pieces, 12,000,000 ft. B. M.; pulp cedar, etc., 10,000 cords; revenue, \$892,000. In New Brunswick the area under license is 6,000 miles, producing, of pine and spruce logs, 87,000,000 ft. B. M.; of hemlock logs, 7,000,000 ft. B. M.; of cedar, 14,000,000 ft. B. M.; of tamarac, 1,400,000 ft. B. M.; of pine and hardwood timber, 176,400 ft. B. M.; of boom sticks, 240,000 ft. B. M.; revenue and bonus, \$102,000.

It is only within a few years that the spruce forests of Quebec, New Brunswick and Nova Scotia have come to be appreciated at their real commercial worth, through the rapid development of the pulp-wood industry. It is conceded by some of the shrewdest manufacturers of pulp, not only in Canada, but in the United States, that these provinces have wonderfully rich resources in spruce, and this is in evidence in the fact that within a twelve-month large tracts of spruce land in Quebec, New Brunswick, and Nova Scotia have passed into the hands of syndicates composed largely of United States capitalists. Proof in the same direction is shown in the yearly increase of American importations. Exportation to the United States was inaugurated only four years ago. The figures are: \$57,197 in 1890, \$170,636 in 1891, \$183,312 in 1892, and \$454,253 in 1893, with a continued increase in 1894.

The reforestation of pine lands is a matter of many years, but experts testify that the young spruce will reach maturity in from 10 to 15 years. It will thus be seen that the owners of extensive spruce limits have within their possession an almost perpetual source of income. Pulp-making in Canada has within 10 years grown into an industry, having nearly \$3,000,000 of invested capital and over \$1,000,000 of annual output. The lumber trade in New Brunswick has taken on a new strength this year through the market found in the United States since lumber was placed on the free list.*

While the tall pines of Ontario have won the admiration of everyone who has made a study of the world's forests, yet to British Columbia belong the trees most admired both in the lumber trade and out of it. The giant cedars of California, whose story has been frequently told with pen and pencil find their counterpart in British Columbia. There grow cedars of wonderful size and beauty. The red cedar of British Columbia is one of its most valuable timbers. With the forests of Ontario becoming all too rapidly denuded, it is proper to speak of British Columbia to-day as the timber province of Canada. The forest area of British Columbia is 285,000 sq. miles, or 182,400,000 acres. Its density is as remarkable as its extent. It is on record that on one acre in the Comox district 508,000 ft. were found. This is, of course, exceptional, but the average is 75,000 ft.

Commercially the most valuable of British Columbia woods is Douglas fir, named after a noted botanist of that name. It is found generously distributed along the coast. Because of its immense length, strength, and straightness, for many commercial purposes it has no competitor. Some of these trees grow to a height of 300 ft. and have a base circumference of 50 ft. The average height, however, is 150 ft., clear of limbs, and the average diameter 5 to 6 ft. Professor Macoun thinks that it will prove a valuable paper-making tree.

The red cedar (*Thuja Giganta*), of whose beauty I have already spoken, is very little behind Douglas fir in the race for commercial supremacy. For general purposes

* Among the big lumbermen of New Brunswick are Hon. J. B. Snowball, Alex. Gibson, Malcolm Mackay, Geo. McKean, and E. Hutchinson.

red cedar is doubtless the most valuable wood on the Pacific coast. Sometimes it reaches a height of 200 ft. and a diameter of 20 ft. The settler, when building his rude hut, finds a good friend in red cedar, while there are few woods that have been found more useful or beautiful for interior finishings in the finest residences.

But the woods of British Columbia are by no means confined to Douglas fir and red cedar. Species of spruce, hemlock, cotton wood, balsam, and even white pine, are to be found on the Pacific coast.

Saw-mill building owes its development in British Columbia largely to the past decade. There are about sixty saw mills in the province at the present time, with a daily capacity of over 3,000,000 ft. The cut of the province last year was 65,000,000 ft. The capital invested in these saw mills has been drawn largely from Ontario, some of the big mills being owned in the main by Ontario lumbermen. Ottawa lumbermen, too, have a considerable interest in the saw mills of the Pacific coast. The question is sometimes asked: what is the possible longevity of the timber resources of British Columbia? One estimate, of a semi-official character, says that there are over 100,000,000,000 ft. of good timber in sight, and that, with the present saw mills making an average output, it would take between 150 and 200 years to exhaust the present supply. Another authority, however, estimates that it would last only 60 years.

British Columbia finds its main market for lumber in Great Britain, Australia, South Africa, South America, and other foreign points, with a new and growing market in California since the duty on lumber was lifted. The domestic market consists of its own province, with a good consumption in Manitoba and the Northwest Territories, while the red cedar shingles of British Columbia have made their way in considerable quantities into eastern Canada, and have come into competition in certain sections of the United States with the Puget Sound cedar shingle, which is almost the same article. Mr. J. R. Anderson, provincial statistician, is authority for the statement that the yearly extent of lumber leases in British Columbia is 524,573 acres. The control of the timber resources of this province is mainly in the hands of the local government.

The province of Manitoba has little fame as a lumber district. Its great reputation is for grain, especially its hard wheats. There is a considerable saw mill and wood-working industry in this province, the supply of timber being drawn largely from the adjoining Lake of the Woods district, where timber is found in such abundance that United States lumbermen have their eye upon it. A considerable amount of lumber comes into Manitoba from Minnesota.

The growing uses of woods are so many and various that one can easily appreciate the remark of Mr. Atkinson in an article in the *Forum*: "The nations or States in which food, fuel, metal, and timber may be produced at the highest relative rates of wages and at the lowest money-cost per unit of product will thereby be enabled to apply labor-saving machines to other branches of productive industry in the most effective manner." Canada is rich in food products, for it is preeminently an agricultural country; in metal, it possesses an aggregation of riches that its people know little of; and fuel, whether wood or coal, is found in the Dominion in the greatest abundance. The figures which I have given leave no doubt of the extent of Canada's timber resources. In all particulars the requirements of Mr. Atkinson are fully met, and it is with a liberal measure of national pride

that a citizen of Canada may refer to these matters, though recognizing at the same time that the cosmopolitan spirit of commerce lays open these vast riches to the entire world. Whosoever will may come.—J. S. Robertson, in *Engineering Magazine*.

TRADE NOTES.

Mr. George F. Rich reports having recently made sales of his machines to Messrs. James Playfair and Chew Bros., of Midland, Beck Manufacturing Co., of Penetanguishene, Howry & Sons, of Fenelon Falls, the Ottawa and St. Anthony Lumber Co., etc.

The attention of readers of the *LUMBERMAN* is directed to the advertisement of the A. R. Williams Machinery Co., Toronto, appearing in this issue. Saw and planing mill owners consult their interests by noting carefully the extensive list of machines which this company offer for sale in their advertisement. As his list will be changed from month to month, machinery buyers would do well to keep a constant eye open.

Messrs. Campbell Bros., of St. John, N. B., whose advertisement appears in this number of the *LUMBERMAN*, have achieved an enviable reputation as manufacturers of axes for the use of lumbermen. They have worked up a good trade in Ontario and Quebec, having recently shipped an order for 350 dozen axes, and their business operations extend as far west as Vancouver, B. C., and into the United States.

The Penberthy Injector Co., of Detroit, Michigan, write us that in visiting the State Fair of Mo., recently held in St. Louis, they found nineteen manufacturers of traction and farm engines with forty engines on the grounds. In looking over these engines they found on thirty-three engines out of the forty the "Penberthy" Injector, the other seven having five different makes. They also state that two manufacturers out of those representing the seven engines agreed to use the "Penberthy" Injector in 1896.

THOMAS PINK
MANUFACTURER
OF
LUMBERING
TOOLS

PEMBROKE, ONT.
OTTAWA ENG CO

Lumbermen's Supplies

We are making a Specialty of Lumbermen's Supplies, and are offering, with other goods, a good Japan Tea, fine draw and make, at 12½ cents. Get a sample of this splendid Tea suitable for the Camp.

H. P. Eckardt & Co.
WHOLESALE GROCERS - TORONTO.

CAMP SUPPLIES

Being extensive operators in the lumber business, as well as Wholesale Grocers, we are exceptionally well qualified to fill orders for Lumbermen's Supplies.

MAIL ORDERS GIVEN PROMPT ATTENTION.

DAVIDSON & HAY
Wholesale Grocers TORONTO

CASUALTIES.

Carl Lundstrom fell on a saw at the Keewatin Lumber Co.'s mill and was so badly injured that he died soon after.

Jack Anderson was killed in Playfair's saw mill at Midland. No one saw the accident and it is supposed he was caught by a belt.

Herman Pettit, one of the proprietors of Pettit Bros.' stave mill, near Comber, Ont., was badly injured by being dragged into the machinery.

Neil King, while portaging provisions on the line of the O. A. & P. S. Railway, was attacked by a moose and badly hurt. He escaped by climbing a tree and driving off the animal with a revolver.

Can your Son keep your books?

Send him for a few months to the

BRITISH AMERICAN COLLEGE OF TORONTO, LTD.

owned by the President of the Board of Trade, the Manager of the North American Life Assurance Co. and other leading business men. Thorough satisfaction guaranteed. Students may enter any time.

EDW. TROUT, President. DAVID HOSKINS, Secretary.

Paul Courier was killed by a falling tree at Argue Bros.' camp near Wanbanic, Ont.

KEEP YOUR EYES OPEN FOR H.W. PETRIE'S BIG LOGUE OF NEW & 2nd HAND MACHINERY OFFICES & WORKS ADJOINING NEW UNION STATION TORONTO CAN

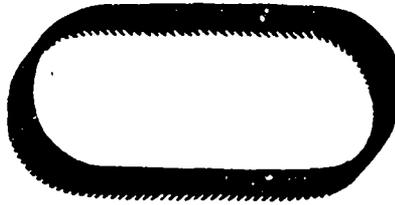
RAILS FOR TRAMWAYS

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.

JOHN J. GARTSHORE, 49 Front St. West, Toronto.

WHY BAND SAWS BREAK

SIXTEEN REASONS, AND HOW TO AVOID THEM



Being instructions to filers on the care of large band saw blades used in the manufacture of lumber.

A book filled with valuable information on the care of band saws. Giving the reasons for breaking; analyzing each reason; giving instructions to dispense with the causes as laid down in each reason; and full details on filing and brazing. The proper styles of hammers to use are illustrated and described, and views of blades showing the blows of the different styles of hammers form an important part of the illustrations. Improper and unequal tension are then treated, and the manner of properly setting irregular teeth is described. In connection with the treatise is a history of the invention, manufacture and use of the saw from its origin to the present time. The work in whole makes an accumulation of information such as has never before been published.

The book is printed on fine paper, good clear type, and is handsomely and substantially bound in cloth. It will be sent to any address on receipt of the price, ONE DOLLAR.

Address— CANADA LUMBERMAN, Toronto, Ont.

Haines & Company LUMBER DEALERS

ESTABLISHED 1861. Office and Yards, foot of Erie St. Buffalo, N. Y. Within 7 minutes walk of principal hotels and depots.

LUMBERMAN'S VEST-POCKET INSPECTION BOOK

Containing Rules for the Inspection and Measuring of Pine and Hardwood Lumber in the leading markets of Canada and the United States. Embracing also many useful tables and calculations of everyday service to lumbermen.

Prepared by the Editor of the "Canada Lumberman."

Toronto, Canada C. H. MORTIMER, Publisher 1895

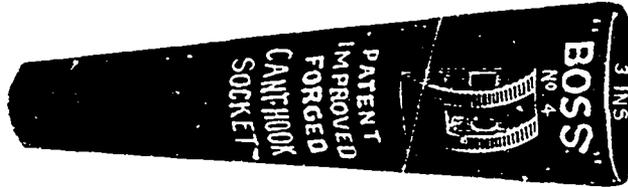
McFARLANE'S PATENT IMPROVED CANT DOGS

WITH FORGED SOFT STEEL SOCKET (as shown in cut).

AN ENTIRELY NEW INVENTION—the result of years of hard study and a large expenditure of money. The aim has been to make a cant dog light enough to be easily handled, yet strong enough to meet the required strain. This, I am pleased to say, has been obtained in THE BOSS CANT DOG. It is forged of the best quality of material, manufactured with the latest improved machinery, and I invite an intelligent inspection of its merits and workmanship, guaranteeing it to be all that is represented. Made in three sizes. No. 1, No. 2 and No. 3. No. 1 is 2 1/4 in. diameter, No. 2 is 2 1/2 in., and No. 3 is 2 3/4 in. diameter. Any length handle, from 2 to 6 feet, and suitable for the different grades of work, from handling the smallest to the largest logs. Manufactured only by

WALTER McFARLANE ST. MARYS, York Co., N. B.

Write for price and discounts.



IMPROVED PICK



THE above is a fac simile of the title page of the latest and most complete Lumber Inspection Book published.

We shall be pleased to send you a copy on receipt of four 3 cent Canadian postage stamps

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THE CANADA LUMBERMAN, Toronto, Canada

Pumps & HYDRAULIC MACHINERY

DUPLEX AND SINGLE STEAM AND POWER

The Northey Mfg. Co. Ltd. TORONTO

THE LAURIE ENGINE CO. • MONTREAL SOLE AGENTS FOR PROVINCE OF QUEBEC.

EASTERN TOWNSHIP NOTES.

(Special Correspondence CANADA LUMBERMAN.)

EDMUND Talbot, St. Cecilia, 7 miles from Lake Megantic, on the branch of the Quebec Central R. R., has a fine steam saw, shingle and planing mill. He has been somewhat handicapped until the opening of the railroad, but now is in a position to ship direct from this mill.

F. H. Boutin & Bros., Lake Megantic, Quebec, have just built a new steam circular mill, with shingle machine and planer. The Jencks Machine Co., of Sherbrooke, supplied the machinery. They intend doing a large local trade, for which there has been an opening in the rapidly growing town of Lake Megantic and surrounding country. The Messrs. Boutin are young men, but have the necessary experience to make the business into which they have gone a success.

Frank Dudley, Lake Megantic, Que., has a very finely equipped mill—two hand saws with re-saw, with the latest

modern appliances for handling lumber at small cost. He saws for the South American market principally, the product being shipped to Portland by rail. He also manufactures clapboards extensively, for which he finds a ready sale in Boston and the Eastern States. Mr. Dudley also has a mill at Scottstown, on the C.P.R., 20 miles from Megantic, equipped with two circular saws, re-saw, also clapboard machinery, in which he saws principally dimension lumber. Mr. Dudley's output from these mills this year is about 15 million ft. lumber and 1,200,000 clapboards.

E. T. Keene & Co., Keene's Siding, Quebec, will have three steam saw mills sawing for them this winter, and will haul the sawn lumber to Megantic Station, where they have opened an extensive piling yard, from which they can ship at any time. They saw for the South American and Boston markets, and intend getting out this winter and spring ten to fifteen million feet. Mr. Keene, the manager, is a "Kusher."

Chas. McCaffery & Son, of Nicolet, Quebec, have built a fine circular saw mill of 30 M capacity, on the new line of the Quebec Central from Tring to Megantic. The mill is 13 miles from Lake Megantic. They have done a good business this season, but since the line has been opened they are in a better position for shipping, and will consequently have a better chance next year. Their output will be in the vicinity of 3,000,000 feet, principally spruce. Their market is Boston and South America. Messrs. McCaffery & Son are practical mill men, and pleasant people to meet in a business way.

The Rust Owen Lumber Co., of Drummond, Wisconsin, have sent out an effective advertisement in the form of a blue pencil, bearing their imprint. They call it the jumbo, and the name is appropriate. Timber must be plentiful yet in that part of the world when they can afford to put so much wood into a lead pencil.

ROBIN, SADLER & HAWORTH

MANUFACTURERS OF

OAK TANNED LEATHER BELTING

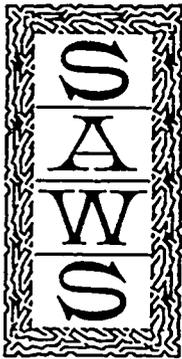
MONTREAL AND TORONTO



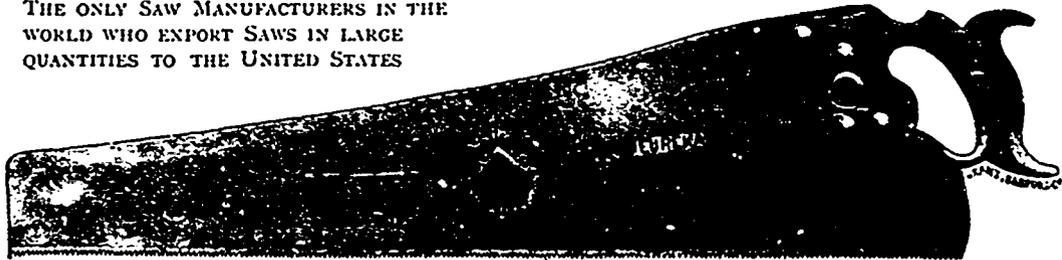
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THE ONLY SAW MANUFACTURERS IN THE WORLD WHO EXPORT SAWS IN LARGE QUANTITIES TO THE UNITED STATES



GALT, ONT.

SOLE PROPRIETORS OF THE SECRET CHEMICAL PROCESS OF TEMPERING : : Our Silver Steel Saws are Unequaled

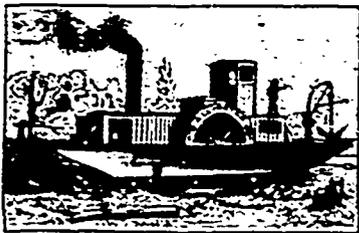
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ALLIGATOR STEAM WARPING TUGS

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ENGINES AND BOILERS FOR STEAM YACHTS



Saw Mill Machinery

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20 FRONT ST EAST
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TORONTO



◆◆◆◆ SPECIAL BARGAINS ◆◆◆◆

BOILERS, HORIZONTAL:

- Eleven 14 ft. long x 52 in. diameter. 33 4 in. tubes.
- One 11 ft. 6 in. long x 48 in. diameter. 49 3 in. tubes.
- One 12 ft. long x 48 in. diameter. 54 3 in. tubes.
- One 14 ft. long x 44 in. diameter. 43 3 in. tubes.
- One 5 ft. 6 in. long x 30 in. diameter. 20 3 in. tubes.
- One 10 ft. long x 44 in. diameter. 47 3 in. tubes.
- One 12 ft. long x 26 in. diameter. 12 3 in. tubes.
- One 14 ft. long x 50 in. diameter. 43 3 1/2 in. tubes.
- One 11 ft. 6 in. long x 50 in. diameter. 60 3 in. tubes.
- One 11 ft. 6 in. long x 38 in. diameter. 20 3 in. tubes.
- One 11 ft. 8 in. long x 44 in. diameter. 46 3 in. tubes.
- One 14 ft. long x 48 in. diameter. 58 3 in. tubes.
- One 5 ft. 9 in. long x 34 in. diameter. 30 3 in. tubes.
- One 12 ft. long x 54 in. diameter. 65 3 in. tubes.
- One 12 ft. long x 36 in. diameter. 33 3 in. tubes.
- One 14 ft. long x 60 in. diameter. 76 3 in. tubes.
- One 12 ft. long x 40 in. diameter. 41 3 in. tubes.
- One 10 ft. long x 42 in. diameter. 47 3 in. tubes.
- One 10 ft. long x 36 in. diameter. 25 3 in. tubes.
- One 12 ft. long x 45 in. diameter. 32 3 in. tubes.
- One 10 ft. long x 36 in. diameter. 34 3 in. tubes.
- One shell 15 ft. x 42 in.
- One 13 1/2 ft. long x 52 in. diameter. 55 3 in. tubes.
- One 5 ft. long x 30 in. diameter. 14 2 1/4 in. tubes.
- One 6 ft. 9 in. long x 36 in. diameter. 26 3 in. tubes.
- One return tubular boiler, 14 ft. long x 60 in. diameter. 101 3 in. tubes.
- One 11 1/4 ft. long x 48 in. diameter. 40 3 in. tubes.
- One 9 ft. long x 44 in. diameter. 47 3 in. tubes.
- One 16 ft. long x 52 in. diameter. 63 3 in. tubes.

BOILERS, FIRE-BOX:

- One 14 ft. long x 36 in. diameter. 27 3 in. tubes.
- One 9 ft. 3 in. long x 30 in. diameter. 40 2 in. tubes.
- One 11 ft. 6 in. long x 36 in. diameter. 39 2 in. tubes.
- One 13 ft. 6 in. long x 33 in. diameter. 36 2 in. tubes.
- One 12 ft. 6 in. long x 32 in. diameter. 36 2 1/4 in. tubes.
- One 6 ft. long x 34 in. diameter. 39 2 1/2 in. tubes.
- One fire-box boiler, 10 ft. long x 42 in. diameter. 33 3 in. tubes. W. E. W. make. Return flue.
- One W. E. W. fire-box, 11 1/2 ft. long x 36 in. diameter. 27 2 1/4 in. tubes.
- One fire-box boiler, 12 1/2 ft. long x 42 in. diameter. 72 3 in. tubes.
- One fire-box boiler, 6 ft. long x 30 in. diameter. 26 2 1/4 in. tubes.
- One fire-box boiler, 11 ft. long x 36 in. diameter. 30 3 in. tubes.
- One fire-box boiler, 4 h. p.

ENGINES—Horizontal, Upright, Marine, Gas and Hoisting:

- One 28 in. x 36 in. heavy slide valve engine.
- One 24 in. x 30 in. heavy slide. W. Hamilton's make, Peterboro'.
- One 18 in. x 36 in. heavy slide.
- One 14 in. x 36 in. Corliss engine, with condenser.
- One 8 in. x 12 in. upright engine, Waterous Engine Works' make. Second-hand.
- One new 8 h. p. upright automatic engine. Abell's make.
- One second-hand 1 h. p. horizontal engine.
- One 1 h. p. horizontal engine. New.
- One 3 in. x 4 in. upright automatic engine.
- Two horizontal engines, 5 in. x 9 in.
- One 7 in. x 10 in. upright engine. English make. Second-hand.
- One 8 in. x 12 in. horizontal engine. Second-hand.
- One 5 in. x 10 in. horizontal engine. Second-hand.
- One 4 in. x 9 in. horizontal engine. Second-hand.
- One 12 in. x 14 in. horizontal engine. Second-hand.
- One 5 in. x 8 in. Leonard horizontal engine. Second-hand.
- One 4 h. p. boiler and engine, on base. American make.
- One 9 in. x 10 in. Waterous Engine Works' make. Self-contained engine.
- One 5 1/2 in. x 7 1/2 in. Waterous Engine Works' make. Self-contained engine.
- One 12 in. x 14 in. horizontal Waterous Engine Works' engine.
- One 9 1/2 in. x 12 in. horizontal Waterous Engine Works' engine.
- One 11 in. x 14 in. horizontal. Thomas' make. Second-hand.
- Five 4 in. x 4 in. marine engines.
- One 2 in. x 5 in. marine engine.
- One 3 in. x 4 in. plain engine.
- One 15 1/2 in. x 20 in. horizontal engine.
- One 7 in. x 7 in. new Stevens engine.
- One 9 in. x 10 in. second-hand upright engine.

ENGINES—(Continued)

- One 4 in. x 6 in. upright engine.
- One 7 in. x 12 in. double cylinder, double drum hoisting engine. New.
- One 16 in. x 21 in. "Tutton" slide valve engine.
- One 2 h. p. gas engine.
- One 12 in. x 30 in. Brown engine. Second-hand.
- Two 4 h. p. gas engines.
- One 12 in. x 12 in. Doty marine engine.
- One 12 in. x 24 in. second-hand slide valve engine. Dickey, Niel Co.'s make.
- One 10 x 28 in. "Cowan" slide valve engine.
- One 5 1/2 in. x 7 in. upright engine, with boiler. Connected.
- One 6 in. x 6 in. upright engine. Doig make. New.
- One 8 1/2 in. x 12 in. slide valve engine. Second-hand.
- One 9 in. x 12 in. rebuilt engine. American make. Would do for hoisting.
- One 9 1/2 in. x 12 in. Rock valve engine. Waterous make.
- One 9 1/2 in. x 12 in. Rock valve engine. Waterous make.
- One 8 1/2 in. x 12 in. slide valve engine.
- One 5 in. x 11 in. slide valve engine.
- One 8 1/2 in. x 12 in. slide valve engine. Pump attached.
- One 9 1/2 in. x 16 in. slide valve engine. Cowan make. Rebuilt.
- One 9 1/2 in. x 12 in. slide valve engine. Rebuilt.
- One 10 in. x 12 in. slide valve engine. Eric Iron Works' make.
- One 16 in. x 28 in. pair twin engines. Kelley make.
- One 7 in. x 12 in. slide valve engine.
- One pair double hoisting engines. No boiler.

PORTABLE ENGINES AND BOILERS:

- Two Waterous Engine Works Co.'s. Champion style. On wheels.
- One Morrison 12 h. p. On wheels.
- One Whitelaw. On wheels.
- One 4 h. p. oscillating engine and upright boiler, complete. On cast iron base.
- One 12 in. x 14 in. 40 h. p. new "Western Empire" portable engine and boiler. On wheels.
- One 10 in. x 14 in. "Western Empire" portable engine and boiler. On wheels.
- Several 12 h. p. Leonard's, White's, and other makes.

PLANERS, SURFACE, and PLANERS and MATCHERS:

- One 16 in. surface planer. J. C. & Co. make.
- One 18 in. surface planer. J. C. & Co. make.
- One 24 in. double feed rolls, 8 in. diameter.
- One 24 in. double feed rolls, 6 in. diameter.
- Two 24 in. Frank & Co.'s make, Buffalo.
- One 24 in. revolving bed. Cowan.
- One 16 in. heading planer. Greenwood make.
- One 24 in. heading planer. Goldie & McCulloch make.
- One 26 in. revolving bed, double. McG., Gourley make.
- One 24 inch Cant Bros. planer and matcher.
- One 18 in. Little Giant planer and matcher.
- One 24 inch planer and matcher.
- One 24 in. planer and matcher. Eclipse. Cant Bros. Co. make.
- One 24 in. planer and matcher. Goldie & McCulloch make.
- One 24 in. planer and matcher. Harper make.
- Two 24 in. double planers and matchers. McKechnie & Bertram, makers, Dundas.
- One 24 in. double planer and matcher and beader. Ball & Co., makers, Worcester, Mass., U.S.A.
- One 24 in. double planer and matcher. Harper make.
- One diagonal door planer.
- One 24 in. double planer and matcher, new. Cowan make.
- One Whitney pattern 28 in. surface machine.
- One 24 in. planer and matcher. Second-hand. Bowmanville make.
- One 24 in. planer and matcher. McKechnie & Bertram make.
- One 24 in. open bed surface planer, light.
- One 26 in. double revolving bed planer.
- One door planer with saw attached.

WATER WHEELS:

- One 40 in. turbine water wheel. Whitelaw make.
- Two 30 1/2 in. Leffels.
- Five 15 inch Goldie & McCulloch's.
- One 16 in. L. G., without div. plate.
- One 18 in. Barber-Harris wheel, in case.
- One water motor, nearly new. Has 1 inch supply pipe.

The A. R. Williams Machinery Co., Ltd., Toronto

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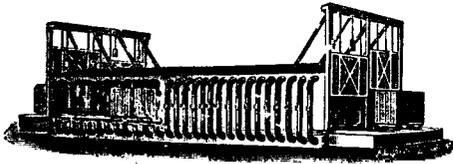
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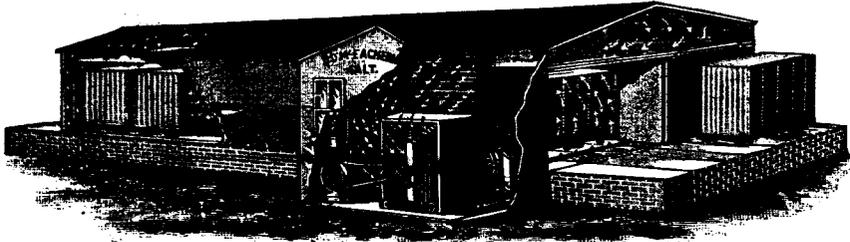
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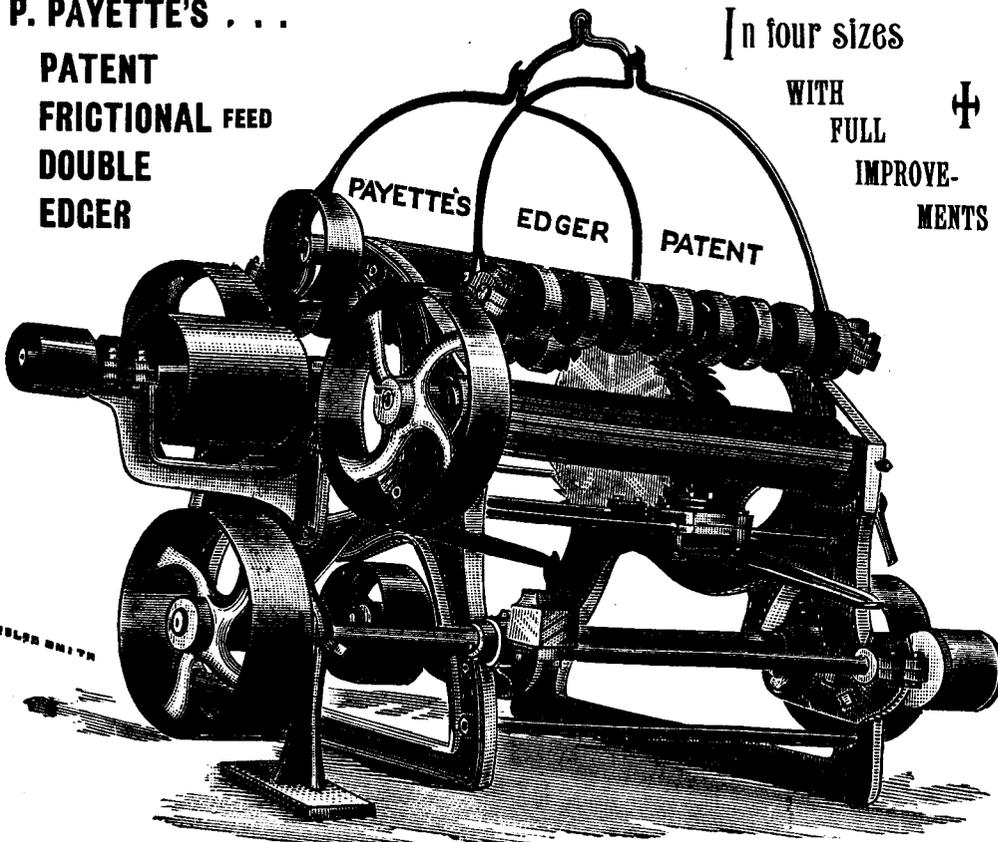
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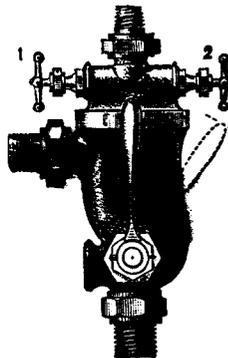
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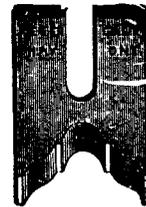


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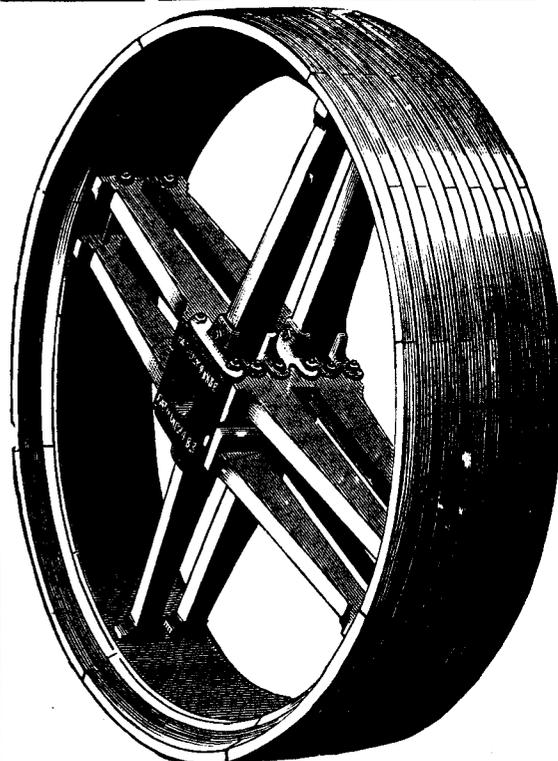
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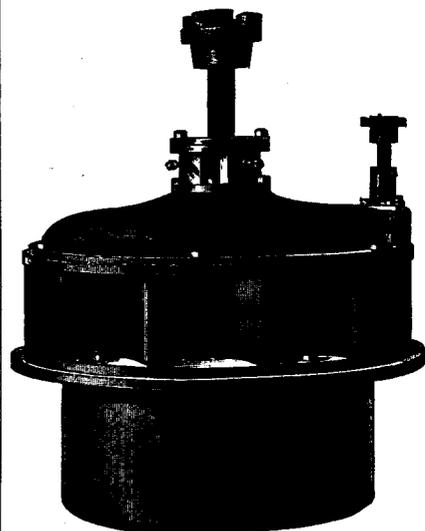
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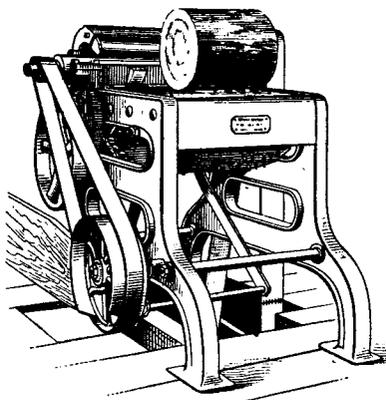
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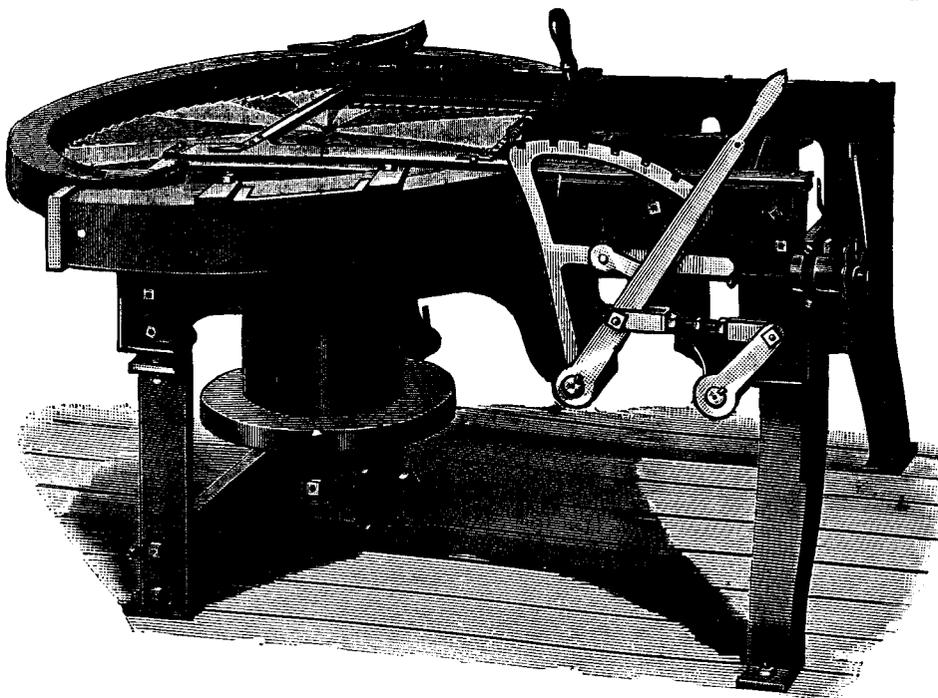
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