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CANADA LUMBERMAN

WOOD WORKERS' MANUFACTURERS' AND MILLERS' GAZETTE

TORONTO, CANADA, APRIL, 1899

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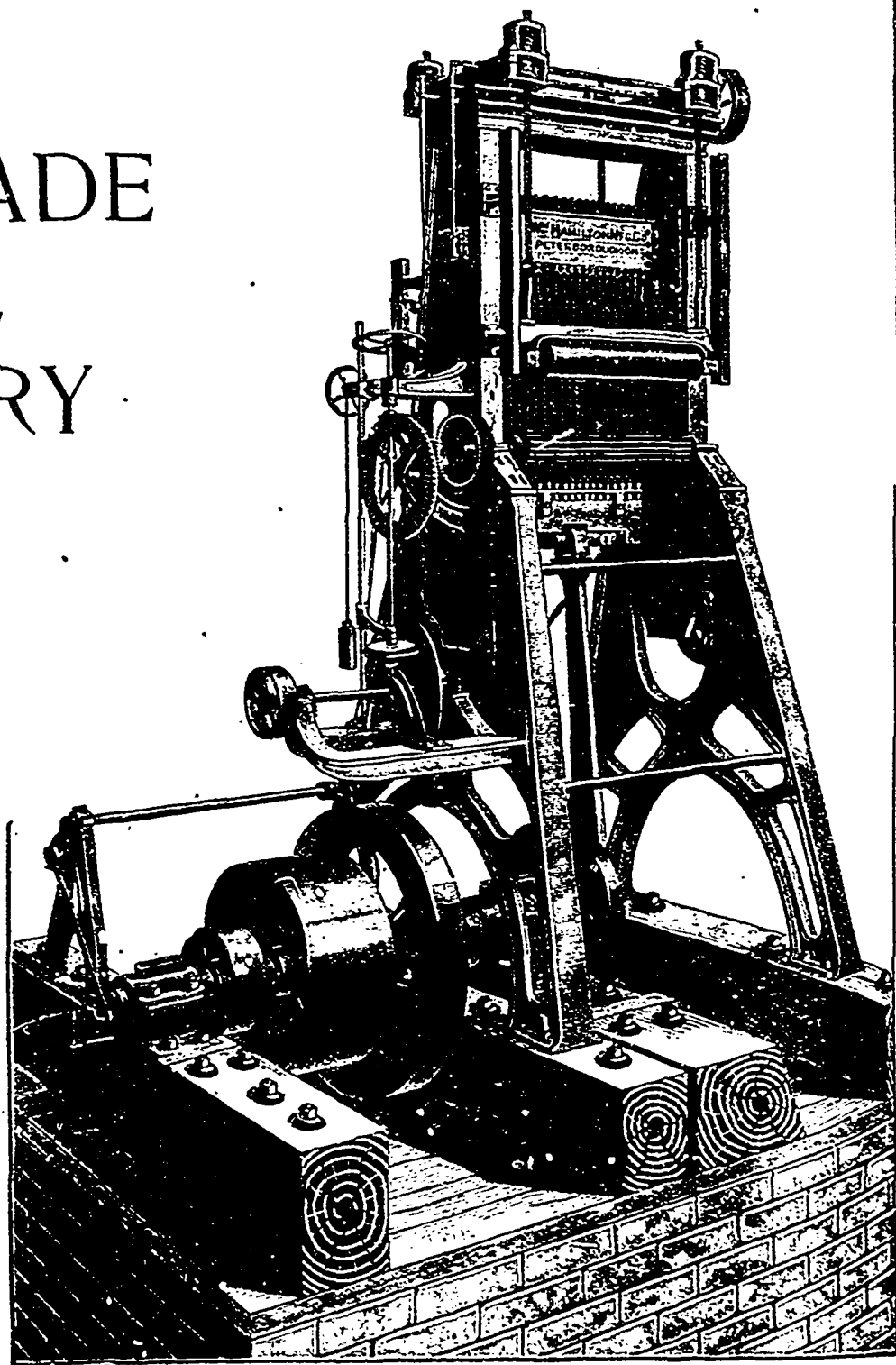
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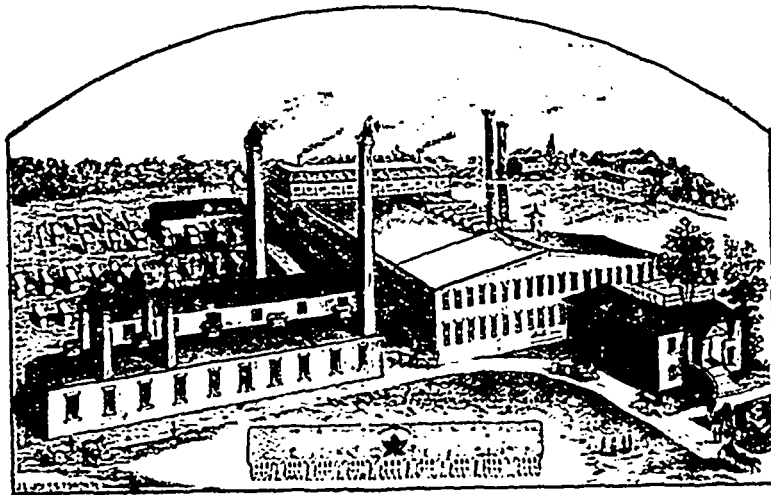
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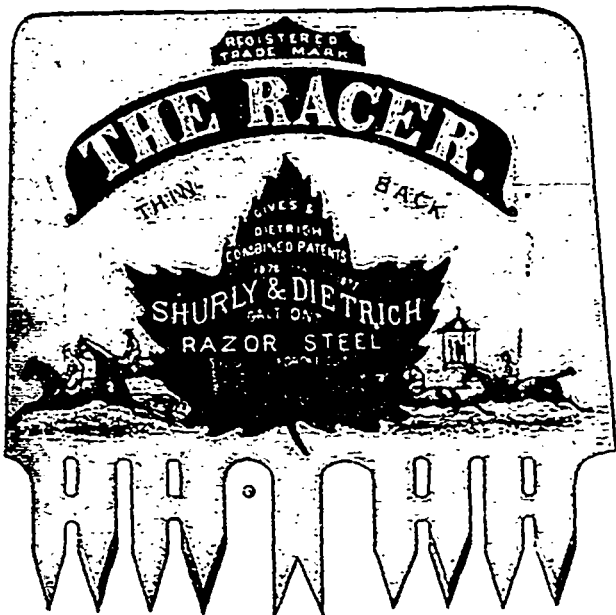
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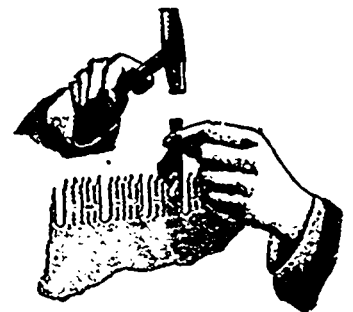
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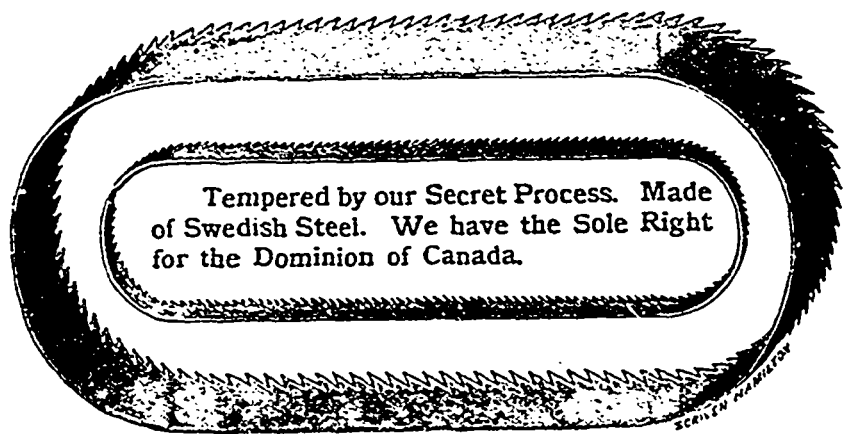
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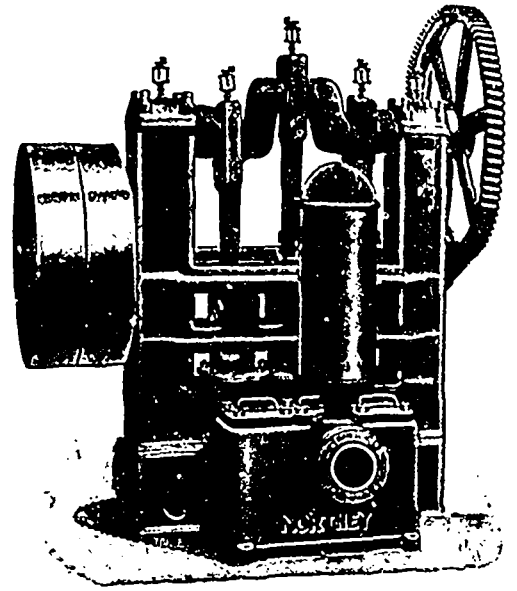
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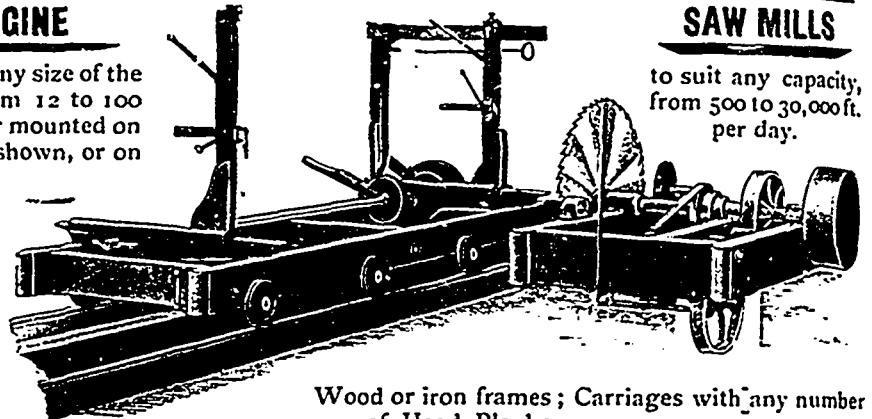
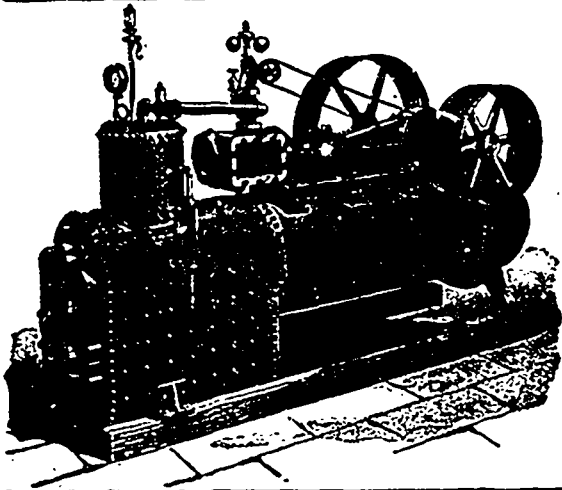
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THE CANADA LUMBERMAN

VOLUME XX.
NUMBER 4.

TORONTO, CANADA, APRIL, 1899

TERMS, \$1.00 PER YEAR.
Single Copies, 10 CENTS.

REGULATIONS OF THE PARIS EXPOSITION.

The Canadian Commission for the Paris Exposition of 1900 have issued a booklet giving regulations, classification of exhibits, and general information for intending exhibitors. The accompanying plan, which is herewith reproduced, shows the arrangement of the Exhibition grounds and buildings, and will no doubt be found of interest. The Exhibition will open on the 15th of April and close on the 5th of November. The Colonial building will be situated on the Trocadero grounds overlooking the Champs de Mars, not far from the Great Eiffel tower, and will cover 36,000 square feet, of which 27,100 feet has been allotted to Canada.

Forms of application for space must be returned to the Canadian Commission, Department of Agriculture, Ottawa, not later than June 1st, 1899. It is the desire of the Commission to secure the best possible exhibit of Canadian goods, and there will be no charge to exhibitors for space. Accepted exhibits from Quebec, Ontario and the west must be delivered at the exhibitor's expense at Montreal or Quebec not later than November 1st, 1899, and exhibits from the Maritime provinces at Halifax, N. S., not later than November 15th. These will be shipped to Paris by the Commission free of charge. Exhibitors are expected to dispose, in Paris, of their exhibits when these have a commercial value, as only valuable collections of objects of special character will be granted free

return transportation. The exhibits are divided into eighteen groups, which are again subdivided into numerous classes. The Forestry exhibit is placed in Group nine, which includes forest, sport, fishing and gathering wild crops. There are two sub-divisions relating to forestry, and numbered classes 49 and 50. Class 49 includes appliances and processes used in forestry, as follows: Collection of seeds; specimens of indigenous or exotic forest products; special implements for gathering, preparing, testing and preserving seeds; drying-houses; implements for nurseries; appliances for tree cultivation and forestry; processes of nursery culture; processes of the cultivation and management of forests; forest topography; forest works, keepers' houses, saw mills, means of removing cut timber, drainage, re-planting; terracing; planting with trees, turfing, etc.; planting for arresting the shifting of dunes.

Class 50 includes products of the cultivation of forests and of forest industries, namely: Specimen of all kinds of forest products; wood for cabinet work and for construction purposes; wrought wood; staves and cask wood; lath wood, wood for dyeing purposes; cork trees; bark for textile purposes; tanning, fragrant, resinous substances, etc.; products of forest industries; turnery, basket work, esparto manufacture; wooden shoes, wood wool, corks, dried woods, charcoal, raw potash, etc.

Group 14 and class 88 includes materials, plant and processes for the manufacture of paper. In this class are placed apparatus and processes for making pulp; mechanical wood pulp, grinding, purifying and drying; chemical wood pulp, semi-chemical pulp, etc.

Group 4 and class 22 includes wood-working plant, such as saws for cutting trees, for cutting

THE NOVA SCOTIA LUMBER COMPANY.

The Nova Scotia Lumber Company, whose office and mills are at Sherbrooke, N.S., is about the largest operator east of Halifax. Over one year ago their saw mill was burned, and during last winter they rebuilt, and have now a very finely equipped plant for the manufacture of lumber, everything except the boilers (which were good and not injured by the fire) being new and up-to-date, thus enabling them to manufacture a greater quantity of lumber at less cost than under the conditions previously existing. The engine is a 350 h.p. Brown automatic cut-off, supplied from four large boilers about 50 feet long. The mill contains one live gang, i.e., for sawing the log in the round without first slabbing, a circular saw rig, patent edger, and the necessary trimmers, picket and lath machines and planer and matcher. The sawdust, bark and mill refuse are taken by a chain about 400 feet away from mill, where it is burned. This chain is arranged and carried through the mill so that the refuse from any part of the mill can be delivered to it directly from the different machines, in this way saving labor and keeping all parts of the mill clean. The capacity of the gang is above the average mill. On August 4th it cut 105,640 superficial feet in nine hours, and on September 13th 58,025 feet was sawn in the afternoon. The circular has a capacity of 30,000 superficial feet per day, and lath machine from 50,000 to 60,000 pieces.

The company had some 5,000,000 feet of logs held over from last year, and their output in the winter of 1897 was about 10,000,000 feet, which gave them a fine stock, but owing to the depressed markets for spruce lumber they only sawed last season about 12,000,000 feet, preferring to hold some stock for early spring sawing. They employ in the neighborhood of 100 men in their mill and yards. Equipped as they are with gang and circular, they can saw deals, timber, planks and boards to any specification. This year they have sawn principally English deals.

The company own extensive limits of the very best

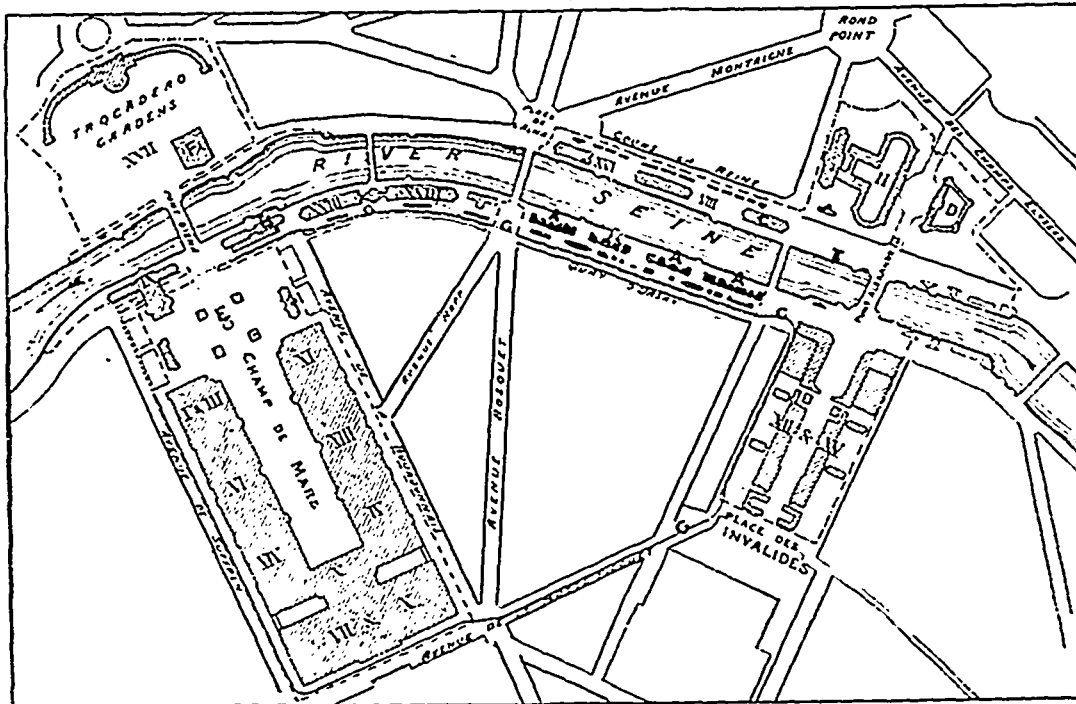
spruce on the St. Mary's river and its tributaries. They also own some fine hardwood timber, which eventually, if not in the near future, will be very valuable. In addition to the limits referred to, the company own a large limit at Economy and have large interests in Cumberland county, near Shulee, which they are not operating at present.

The company is composed of financially strong men, and some of them are the most practical and successful lumbermen in the eastern provinces. John W. Seaman is the manager and G. K. Prescott assistant. Hon. W. T. Pipes and Dr. Hewson, of Amherst, John Gillespie, manager of Prescott, Gillespie & Co, Shulee, and Job Seaman, Barronsfield, are members of the company.

Sherbrooke is about 140 miles east of Halifax, and very prettily situated, 6 miles up the St. Mary's river. The nearest railway station is Antigonish, 40 miles distant.

IT IS GOOD VALUE.

Mr. John Stanford, of Chester, Nova Scotia, writes regarding the CANADA LUMBERMAN: "The weekly number is worth the amount to any one in the business."



PLAN OF EXHIBITION GROUNDS AND BUILDINGS— PARIS EXPOSITION.

up timber with the bark on, for shaping, etc; machines for squaring timber, planing machines, lathes, drilling and slotting machines; machines for making tongues and grooves, tenons and mortices; shaping and copying machines, machine fittings; machine and hand tools specially used in wood-working; machine tools which do not come under any special classification.

A curious instance of dwarfism in pines is recorded by C. E. Bessey, of the University of Nebraska, who states that on Green Mountain, near Boulder, Col., he found in a crevice of the rock at the summit a pine tree less than 3 inches high and 1/3 inch in diameter. It had no branches, and bore a single tuft of needles at the top. Nevertheless, it showed 25 distinct annual rings, making it presumably 25 years of age.

UNIFORM INSPECTION RULES FOR LUMBER.

OPINIONS ON THE SUBJECT FROM SEVERAL MEMBERS OF THE TRADE.—THE ADVANTAGES OF STANDARD RULES GENERALLY ADMITTED.—DIFFICULTIES OF THEIR ADOPTION ENUMERATED.

WITH the object of learning the views of the lumbermen of Ontario on the subject of adopting uniform rules for the inspection and grading of pine and hardwood lumber, letters of enquiry were forwarded by the publishers of this journal to several members of the trade. The questions asked therein were as follows :

1. Do you consider that the adoption of standard inspection rules would be in the interest of the lumber trade of Ontario?
2. In what way, if any, has the absence of such rules been a disadvantage to the lumber trade in the past?
3. Could rules be compiled which would serve all sections of the province, and apply to export as well as domestic trade? If not, why?
4. How, in your opinion, could the adoption of uniform rules best be accomplished?
5. Would you be willing to co-operate in a movement to secure standard rules?

Below will be found the answers received up to the time of going to press :

MICKLE, DYMENT & SON, Barrie: "1. Yes. 2. Disputing qualities has given lumbermen considerable trouble. 3. We think it could be done, because then lumber would be sold according to the inspection. 4. By the Lumbermen's Association taking it up and agreeing upon the qualities. 5. Yes."

H. CARGILL & SON, Cargill: "We would not join in a movement to secure standard rules and inspection of lumber for the Province of Ontario. Every lumberman has his own method of manufacturing and selecting his own lumber, and fixes his prices according to the quality of lumber thus selected."

R. LAIDLAW & CO., Toronto: "It is certainly very desirable to have uniform rules for the inspection of all kinds of lumber. We are given to understand that at a meeting of the Lumbermen's Association held a short time ago, a committee was appointed to prepare rules of inspection and present them to the Board."

THE RATHBUN COMPANY, Deseronto: "We heartily approve of bringing the rules governing the inspection of hardwood to the same standard as those existing in the United States; in fact, we think the national rules in the United States for governing the inspection of hardwood lumber should be adopted by Canadian lumbermen."

WHALEY LUMBER CO., Huntsville: "1. We think standard inspection rules would be a benefit. 2. In so much difference of opinion as to goods. 3. If we had established inspection rules, foreign countries would buy according to the Canadian inspection. 4. Compare the market with the kind of lumber we produce and make the rules statutory. 5. Yes."

J. & T. CONLON, Thorold: "We are not much interested in the question, as we do not sell our lumber in cargo lots at the mill, and generally log run, the buyer doing the grading himself. Would say, however, that we would like to see a system in this country of definite uniform grades of lumber, as it would avoid many misunderstandings, and we hope that action will be taken in the matter."

KEENAN BROS., Owen Sound: "1. Yes. 2. Because the quality should govern the price, and in the past each dealer and mill man, when shipping, has had to agree on the grade between themselves, instead of referring to a standard authority that both should be bound to abide by. 3. Yes; there should be no trouble in the Province, and we could make sales as per provincial inspection, instead of having to agree on rules enforced at destination. 4. Only by the co-operation of mill men and dealers, who would both have to abide by the rules. 5. Yes."

W. J. SHEPPARD, manager Georgian Bay Lumber Co.: "We do not consider that it is possible to adopt a standard of inspection that could be carried out by all the

various lumbermen in Ontario, for the reason that we do not believe there are any two lumbermen at the present time who inspect their lumber the same. In many cases they have separate and distinct markets to supply. The grading called by the same name in one section would not at all suit the demands of another section. In buying lumber in this country, the grades shown, and the prices asked, are taken into consideration before the purchase is made. Under the circumstances, we therefore think that uniform rules could not be adopted at the present time."

C. BECK MFG. CO., Penetanguishene: "A national rule for inspection is much needed, as up to the present time nearly everyone has had an inspection of his own, and the buyer does not know what he is buying unless he sees the lumber himself. I brought this matter up at the Lumbermen's meeting some time ago, to have a uniform inspection and grades of lumber. Mr. Toner, of Collingwood, was instructed to work out a scheme for different grades of lumber. In the North-west they have uniform inspection rules, and I sent Mr. Toner a copy of their rules to help him in his work. If national inspection rules could be made for both Canada and the United States, it would be much better, and I would be greatly in favor of it."

LONDON LUMBER CO., London: "We are most anxious that some definite steps should be taken to put the lumber business on a proper footing. Our trade is in hardwood lumber altogether, and we are of the opinion that if the United States adopt a national rule of inspection, as proposed, that Canada should adopt a standard Canadian rule of inspection. Of course, if such a rule were adopted the quality of the products of the Canadian forests would have to be taken into consideration, and, we believe, this would apply to pine as well as hardwoods. A rule of this kind could only be adopted by co-operation. By co-operating, an act of legislature could likely be put upon the statute book. We are in favor of provincial rules of inspection, and would like to see the rules the same for the domestic trade as well as the export trade. The forests of the United States are thinning out proportionately as fast as they are in this country, and it would be an advantage to both countries to have an international inspection rule. We would be willing to co-operate to a certain extent to bring about this result. The most important question that you ask is No. 3, and we are of the opinion that if inspection rules were properly laid down, the export trade would have to take the lumber at our inspection. At the present time the business is frightfully hampered for the want of a uniform rule of inspection on the other side. Our experience is that no two houses inspect alike."

PICKARD & ROWAN, Owen Sound: "As we handle hardwoods almost exclusively, our remarks must be confined to such timber as goes under the head of hardwood lumber. We believe that so long as mill-men have their lumber go to the consumer through dealers, there is an absolute necessity for rules to go by in the buying and selling of such stock, and we do not see any reason why a uniform standard of rules would not be an advantage to all concerned. The absence of standard inspection rules have, we believe, been felt most by dealers, rather than by manufacturers, as they have frequently to sell lumber named as a certain standard, in an American market, and buy it on a Canadian market, where the standard of the same name means quite a different grade of lumber; hence, when the stock that is bought on a Canadian rules of inspection arrives at its destination, there is frequently trouble. Then there is delay in getting a settlement, sometimes expense in going to arrange same, generally a compromise, and very often a straining of business good feeling. Of course, the manufacturer has to bear a part, at least, of this expense, indirectly anyway, as the dealer has always to count on having more or less of these experiences, so long as the present conditions exist. We do not see any reason why a standard of rules could not be compiled that would be satisfactory to all sections of the province, but our experience is quite circumscribed in this respect. In reference to question 4, it is our opinion that so long as lumber is sold, bought and inspected by men, and not by machines, there will not be rules that will be strictly observed by buyer and seller. Mill-men might as well try to establish uniform rules in buying logs, and if there is any one thing on this green earth that cannot be done, it is this. If there is any project brought to our notice that we think has a

chance of securing a uniform standard of rules, we would be willing to co-operate with its promoters in the securing of same."

THE ORILLIA EXPORT LUMBER COMPANY, Orillia: "1. Yes, most assuredly it is in the interests of the trade that such rules should be adopted. 2. The particular and most important disadvantage has been in quoting prices by letter. The holder of stock who is satisfied to call a grade by its right name, and make his price accordingly, very often suffers to the gain of the who is willing to sell one thing and supply another. 3. Rules could certainly be made which would serve to govern the trade in this Province as well as all the Provinces, and we see no reason why they could not be made to govern our export trade as well. All that would be required would be that the buyer and seller understand thoroughly that the transaction is based on some certain rules of inspection. 4. By the formation of an Association for the express purpose of making rules governing the inspection, and securing a sufficient number of manufacturers and dealers as members to insure said association sufficient strength to protect its members. It would be also well to have some licensed inspectors, said license to be given after the inspector had qualified a board of examiners. Then, in case of dispute between buyer and seller, one of these inspectors could be called on to make an inspection and make affidavit as to its correctness, when the matter, as far as the quality of the lumber was concerned, could be considered as settled. If the American lumbermen succeed in establishing national rules, it would be well, since we trade so largely with them, that the rules were as nearly like theirs as our surroundings and conditions permit. 5. Yes; we will be most pleased to do all we can towards establishing such rules, and feel that we cannot get them too soon."

MACPHERSON & SCHELL, Alexandria: "1. We would decidedly agree to endorse standard inspection rules applying to this country, and if the rules applied to, or corresponded with, the national inspection rules of the United States, so much the better. 2. The absence of inspection rules in Canada has not operated against the Canadian trade generally, nor in any case where the American inspection or New York inspection is understood. In many cases where an order may be placed, (such for instance, as the following: 100,000 ft. of 1st and 2nds basswood, 7½" wide x 12/16 feet long) if the party selling does not understand the rules, he will find the buyer is entitled to call for every inch of the order absolutely clear, as there are no firsts in the lot, nor can there be, and seconds in this width must be clear. In such cases, unless the mill-man fully knows the inspection rules of New York, he is misled by the term firsts and seconds, and the deal may cause disputes to arise. Well understood inspection rules would prevent this state of affairs. In this connection, however, we would suggest that there should be established some authority of a legislative nature, by which any set of rules would be established upon a higher plane than at present obtains in the trade. 3. We think rules could be compiled to meet the requirements of this question, if our dealers and mill-men would sell only according to such established rules both locally and for export, and in case of export bills make the contract unimpeachable by the buyer, if legislative authority conferred a license upon authorized cutters, who could be asked to inspect shipments and issue certificates. This may be objected to as expensive, and in such cases may result in shippers taking the risks they now must do with no authorized cutters. 5. Yes."

J. E. MURPHY, Hepworth Station: "While I believe that such legally recognized rules as could be so defined as to be readily and intelligently understood by others, as well as the practically trained lumbermen, would be desirable, particularly to the pine trade, I do not believe that such rules could be readily applied to the hardwood trade. The market requirements in hardwoods are so numerous and so varied that while rules of inspection could be applied in one case, there would be several others in which like rules would not apply. Inspection rules as now adhered to allow so many knots to a board or plank of a certain width in hardwood, and if the number of knots should exceed what the rules call for, the board may be rejected. Now, while knots are as a rule undesirable defects, there are very many uses to which hardwood is put where sound knots do not interfere with the utility of the lumber. I would far quicker reject a piece of clear hardwood with cross-grain than I

would for an extra sound knot or split, if otherwise all right. First and second hardwood rules call for 6" and 8" wide. Now, what intelligent consumer of hardwood would reject a sound strip of maple three inches wide, when the lumber under inspection is going into a planing mill to be manufactured into flooring. The same thing would apply to soft elm going into a chair factory to be resawed into chair stock. A hardwood saw mill making lumber for the market to be graded first and second, and buying logs in competition with a chair factory in a hardwood locality, or in fact any wood-working industry, could not long continue to be a paying investment for its owner. The tendency now on the part of the hardwood lumber manufacturer is to sell his output mill run. You can scarcely induce a hardwood man to sell his lumber this season common and better, and it is almost impossible to buy firsts and seconds. This is due to the great difficulty in obtaining a market for the lower grades. Of course, I do not wish to be understood as opposed to intelligent rules of grading and inspecting hardwoods for market: in fact, I would be in favor of it. Then let the hardwood men thoroughly understand the rules of grading and put a proper price on their higher grades, which I contend should be high enough to leave the lower grades on the manufacturer's hands at no greater cost than the labor of repiling and caring for the rejects until a market could be obtained. The existence of rules of inspection would be all right for export lumber in hardwoods, and would not prevent our local consumers buying mill run or common or better if it suited their purpose. For years past there has been a lack of sympathy between the price of hardwood lumber and the inspection thereof. I am speaking from personal knowledge of facts. The ruling price for maple, beech, birch and elm for several years past, for New York, Boston, Baltimore and other eastern markets, has been from \$12 to \$14 per M on cars at point of shipment, according to thickness, New York inspection. Now, I can vouch for the inspection being close and meaning good lumber, but I would not object to that if the price was equally good. No man can afford to put a force of men and teams into a hardwood mill and take out hardwood and sell at such prices without becoming financially involved. When prices of high grade hardwood advance 50 per cent. I will hold up both hands for rules of inspection."

CONVENTION OF WHOLESALE LUMBER DEALERS.

The seventh annual convention of the National Wholesale Lumber Dealers' Association, which embraces the leading wholesale dealers in the Eastern States, opened in Boston on March 1st. The roll call showed that there were 105 members present, and in addition there was a representation of about 35 from retail dealers' associations. These retail dealers had been invited by the wholesalers to represent their separate associations for the purpose of conferring over subjects of mutual concern to both branches of the business, and, if possible, of creating closer relations between the wholesalers and retailers.

The president of the association, Mr. John N. Scatcherd, of Buffalo, in his opening address, congratulated the members upon the return of prosperity, and upon the fact that a better feeling was manifested between the different branches of the trade. Mr. Eugene F. Perry, Secretary, outlined the work of the past year. He showed the membership on March 1st to be 215, representing a gain of fourteen during the year.

The business transacted at the convention may be divided into three sections—first, the establishing of better relations between the wholesale and retail trade; second, the formulating of a system of discount and time to best serve the lumber trade; third, the adoption of hardwood inspection rules.

In connection with the first question, the Committee on Trade Relations presented a lengthy report which, stated that the creation of the com-

mittee had been decided upon on account of representations made by certain wholesale dealers in North Tonawanda, who contended that they had suffered in both volume of trade and percentage of profits by competition from scalpers. The report stated that one great cause of friction between the wholesale and retail associations was the classification of the trade, but this was being gradually overcome by the adoption of a plan of a joint final classification.

The report of the Board of Managers of the Bureau of Information was read by the secretary. It stated that a feature of the year's administration was the inauguration of a special system of reports upon dealers who had contracted the habit of making settlements to suit themselves, ignoring either regular or agreed terms of sale.

The retail dealers, after a conference, submitted a report to the association, which provided that the latter take up and formulate rules to classify the trade into three sections, as follows: 1st, manufacturers; 2nd, wholesale dealers or agents; 3rd, retail dealers or legitimate trade for wholesale dealers to sell to. The report also recommended that the National Wholesale Dealers' Association take up and consider the recognized evils from which both branches of trade are suffering, viz., sales by manufacturers and wholesalers to consumers; sales by brokers, agents and commission men to consumers; sales and quotations by so-called retail dealers to consumers, through agents, and by methods used by the wholesalers in soliciting trade from retailers. The retail dealers pledged themselves to buy their stock, as far as possible, from members of the National Lumber Dealers' Association, and the latter agreed not to sell direct to the consumer. The report submitted by the retail dealers was unanimously adopted.

Mr. Charles Hill, of North Tonawanda, introduced the subject of establishing regular terms of sale, the discussion on which indicated some difference of opinion between the pine and hardwood trade as to the date from which settlements should be dated. It was finally resolved that in the absence of other arrangements between buyer and seller, the terms of sale in the wholesale trade should be as follows: Freight, net cash when lumber is delivered; balance, either 1½ per cent. off for cash within fifteen days from date of invoice, or bankable paper, sixty days from date of invoice.

The Committee on Hardwood Inspection, of which Mr. M. M. Wall, of Buffalo, is chairman, submitted a report recommending the adoption of the inspection rules of the National Hardwood Lumber Association, and the appointment of a committee to confer with that association to secure such modifications as may be necessary to the end that a uniform national inspection be established. These recommendations were unanimously adopted.

The Nominating Committee, consisting of Messrs. E. C. Grant, R. B. Wheeler and Alfred Haines, submitted the names of the following gentlemen to serve as trustees during the ensuing three years: John N. Scatcherd, Buffalo, N.Y.; Robert C. Lippincott, Philadelphia, Pa.; C. M. Smith, North Tonawanda, N.Y.; W. C. McClure, Duluth, Minn.; L. H. Shepherd, Boston, Mass. These gentlemen were elected without opposition.

On Wednesday evening the visiting lumbermen were tendered a banquet at Young's Hotel by the New England Association of Lumbermen, at which there was a large attendance and much brilliant speech-making.

Following the adjournment, the trustees re-elected the board of officers, which is as follows: President, John N. Scatcherd, Buffalo; 1st vice-President, Robert C. Lippincott, Philadelphia; 2nd vice-President, C. H. Bond, Oswego;

Treasurer, Frederick W. Cole, New York; Secretary, Eugene F. Perry, New York; General Counsel, John Jay McKelvey, New York.

WHOLESALE DEALERS REPRESENTED.

The following wholesale firms, who are members of the association, were represented at the convention:

Atlantic Lumber Company, Boston, Mass.
Badger & Winslow, Boston, Mass.
Owen Bearse & Son, Boston, Mass.
C. M. Betts & Co., Philadelphia, Pa.
Boston Lumber Company, Boston, Mass.
Buffalo Hardwood Lumber Company, Buffalo, N.Y.
Buffalo Maple Flooring Company, Buffalo, N.Y.
Briggs & Cooper, Saginaw, Mich.
E. P. Burton & Co., Philadelphia, Pa.
W. R. Butler & Co., Boston, Mass.
E. P. Chapel, New York.
Chequasset Lumber Company, Boston, Mass.
Cleveland Saw Mill & Lumber Co., Cleveland, O.
F. W. Cole, New York.
Crosby & Beakley Company, New Haven, Conn.
R. B. Currier, Springfield, Mass.
Cypress Lumber Company, Boston, Mass.
John E. DuBois, Philadelphia, Pa.
Dwight Lumber Company, Detroit, Mich.
Eddy-Sheldon Company, Bay City, Mich.
C. K. Eddy & Sons, Saginaw, Mich.
Empire Lumber Company, Buffalo, N.Y.
Emporium Lumber Company, Buffalo, N.Y.
L. H. Gage Lumber Company, Providence, R.I.
Haines & Co., Buffalo, N.Y.
E. B. Hallowell & Co., Philadelphia, Pa.
Hall & Munson Company, Bay Mills, Mich.
W. S. Harvey, Philadelphia, Pa.
Jones & Witherbee, Boston, Mass.
B. F. Lamb & Co., Boston, Mass.
Lawrence & Wiggin, Boston, Mass.
Litchfield Bros., Boston, Mass.
R. C. Lippincott, Philadelphia, Pa.
H. M. Loud & Sons, Buffalo, N.Y.
Hugh McLean & Co., Buffalo, N.Y.
Millard Lumber Company, New York.
Montgomery Bros. & Co., Buffalo, N.Y.
Northwestern Lumber Company, Eau Claire, Wis.
Noyes & Sawyer, Buffalo, N.Y.
Ottawa Lumber Company, Ottawa, Ont.
Peart, Nields & McCormick Co., Philadelphia, Pa.
Pease Lumber Company, Springfield, Mass.
Rib River Lumber Company, Toledo, O.
Rice & Lockwood Lumber Company, Springfield, Mass.
Chas. S. Riley & Co., Philadelphia, Pa.
W. H. Sawyer Lumber Company, Tonawanda, N.Y.
Scatcherd & Son, Buffalo, N.Y.
Shepard, Farmer & Co., Boston, Mass.
Shepard & Morse Lumber Company, Boston, Mass.
C. R. Shuttleworth, Buffalo, N.Y.
Smith, Fassett & Co., Tonawanda, N.Y.
E. A. Smith & Co., Providence, R.I.
E. A. Souder & Co., Philadelphia, Pa.
Stetson, Cutler & Co., Boston, Mass.
Swan-Donogh Lumber Co., North Tonawanda, N.Y.
Taylor & Crute, Buffalo, N.Y.
H. M. Tyler Lumber Company, Tonawanda, N.Y.
Underhill & Poole, Buffalo, N.Y.
United Lumber Company, Springfield, Mass.
H. D. Wiggin, Boston, Mass.
White, Rider & Frost, Tonawanda, N.Y.
Wiley, Harker & Co., New York.
R. B. Wheeler & Co., Philadelphia, Pa.
Weston & Bigelow, Boston, Mass.
Eugene F. Perry, New York.
John Jay McKelvey, New York.
E. True Bennett, Hardwood Lumber Company, Memphis, Tenn.

AN ATTRACTIVE CATALOGUE.

In the illustrated catalogue No. 45, issued by the Standard Dry Kiln Co., of Indianapolis, Indiana, and just to hand, we find much of interest regarding the principle of drying by moist heat, the method which it is claimed is scientifically applied only in the Standard dry kiln. In addition to several illustrations and photographic views, there appear numerous commendatory letters from customers who have given the Standard dry kiln and the steel roller bearing trucks a trial. These include some of the largest woodworking firms in the United States and Canada, including J. A. Sayward, of Victoria, and the Pacific Coast Lumber Co., of New Westminster, B. C.

PERSONAL.

Mr. John A. Bertram, son of Mr. John Bertram, president of the Collins Inlet Lumber Company, has opened an office as lumber inspector and shipper in the Land Security Chambers, Toronto.

The lumber trade will sympathize with Mr. Wm. Thompson, president of the Longford Lumber Co., in the death of his wife, which took place on March 4th. Mrs. Thompson was but thirty-two years of age.

Mr. S. P. Benjamin, lumber manufacturer, of Wolfville, N. S., returned last month from a three months' business trip to Cuba and other West India islands. Mr. Benjamin looks for increased trade between Canada and these islands.



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ADVERTISING RATES FURNISHED ON APPLICATION

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

Special pains are taken to secure the latest and most trustworthy market quotations from various points throughout the world, so as to afford to the trader 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.

Advertisements 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.

FACTS WORTH CONSIDERING.

A FEW years ago mention was rarely made of the fact that lumber was imported into Canada from the United States; the quantity was then of little account. Simultaneously with the settlement of our western country, changed conditions have arisen, and to meet these a re-adjustment of our business relations with the United States is necessary. A duty having been placed upon Canadian lumber imported into the United States, it is proposed to place a similar duty upon lumber and other timber products imported into the Dominion from that country. This fact lends additional interest to the statistics just to hand of the timber exports from the United States for the last fiscal year. It can safely be assumed that the lumber trade of Canada, as well as the general public, underestimate the quantity of wood products of American manufacture that find a market within our borders. The figures given below of the imports for the last fiscal year, as compiled from the Treasury Department statistics, will assist a better understanding:

TIMBER AND UNMANUFACTURED WOOD, SAWED.

	Feet.	Value.
Nova Scotia and New Brunswick...	2,443,000	\$ 28,624
Quebec, Ontario, etc.....	10,003,000	139,523
Total.....	12,446,000	\$168,147

TIMBER AND UNMANUFACTURED WOOD, HEWN.

	Feet.	Value.
Nova Scotia and New Brunswick..	17,285	\$ 2,530
Quebec, Ontario, etc.....	2,406,344	737,149
Total.....	2,423,629	\$739,679

BOARDS, DEALS AND PLANKS.

	Feet.	Value.
Nova Scotia and New Brunswick..	2,245,000	\$ 40,880
Quebec, Ontario, etc.....	67,900,000	963,263
British Columbia.....	2,252,000	16,714
Total.....	72,397,000	\$1,020,857

JOISTS AND SCANTLING.

	Feet.	Value
Nova Scotia and New Brunswick....	290,000	\$ 3,115
Quebec, Ontario, etc.....	7,030,000	70,761
Total.....	7,320,000	\$73,876

SHINGLES.

	Feet.	Value
Ontario and Quebec.....	7,312,000	\$10,250
British Columbia.....	5,590,000	7,305
Total.....	12,902,000	\$17,615

It will be observed that the exports of lumber to Manitoba and the Territories, which last year represented thirty-eight million feet, are not mentioned in the above statistics, although it is possible that they may have been taken into account in conjunction with the products of some of the other provinces. Granting this, we find the total exports to Canada of timber and lumber as shown to be, approximately, ninety-five million feet, having a value of over two million dollars. But it is improbable that these statistics are complete, as government figures of this character do not usually represent accurately that for which they are intended, frequently falling short of the actual total.

That timber products to the value of over two million dollars were freely admitted into Canada in one year, while a duty was exacted on every board going into the United States from Canada, is a fact which cannot become too widely known in this country. We are too apt to regard our importations as an insignificant quantity, and thus in our ignorance to allow the United States to exploit our home market, while at the same time excluding us from theirs. It is of interest to compare the lumber imports of the two countries. As stated above, Canada imported from the United States last year timber and lumber to the value of two million dollars, while in 1896, the last year of free lumber, the United States imported from Canada lumber to the value of between eight and nine million dollars. Since the imposition of the duty, the quantity imported by the United States has been reduced, and were the complete returns for 1898 available, we believe they would show a substantial decrease in comparison with the year 1896. The relation which our lumber imports from the United States bear to our exports to that country is a question which might well receive greater attention, and which has been overlooked very largely in the past.

Reverting to the Treasury Department statistics, we observe that Great Britain was the best customer for boards, planks and deals, taking 123,425,000 feet, but that Canada ranks second, taking over half that amount, or 70,145,000 feet. For timber and unmanufactured wood, hewn, Canada stands first among the customers of the United States, Great Britain coming second. Canada ranks sixth as a purchaser of timber and unmanufactured wood, sawed, second as a purchaser of joists and scantling, and third as a purchaser of shingles. These classifications show the importance of the Canadian market to the United States lumbermen so far as their export trade is concerned.

The Dominion parliament, now in session, is not likely to adjourn without passing important legislation looking to the protection of the lum-

bering industry, and, consequently, to the country at large. This will be done by placing an import duty on United States lumber and an export duty on pulp wood.

NEED OF UNIFORM INSPECTION RULES.

THE movement in the United States towards securing uniform rules for the inspection of lumber has been advanced another step by the adoption by the National Wholesale Dealers' Association of the rules compiled by the National Hardwood Dealers' Association. That an association such as the above, composed of the leading wholesale dealers of the Eastern States, should have accepted these rules, must influence smaller organizations in the same direction, and be regarded as a strong factor in the ultimate success of what is intended to be accomplished, namely, their universal adoption.

It must be admitted that the position of the lumber trade in the United States, so far as uniform rules are concerned, is vastly superior to that of the trade in Canada, and particularly in Ontario, where standard rules are almost unknown. In Quebec and New Brunswick the inspection of spruce lumber is fixed by statute, but the rules are so general in character and indefinite as to be of little value, and are used only for export trade. To a large extent every mill man makes his own inspection, and sells his production either upon its reputation or after having it inspected by the buyer. In Ontario there are no inspection rules in existence, those adopted by the Toronto Board of Trade having long since become obsolete.

Elsewhere in this number are given the views of some members of the lumber trade in Ontario regarding the adoption of uniform rules. The advantages of such seem to be quite generally admitted, although in one or two instances one can almost read between the lines that the consequent readjustment of trade is not regarded favorably, while others doubt the feasibility of adopting standard rules. There is more enthusiasm evinced by the hardwood dealers and manufacturers than by the pine men, perhaps due to the fact that they have suffered greater loss and annoyance in the past through the absence of proper rules of inspection. The buyer of lumber, in order to feel reasonably safe in making a quotation, must first inspect the stock, as one mill man may, in his judgment, class as firsts or seconds that which another manufacturer would regard as common. With uniform rules this would not be necessary in all instances, and the sale and purchase of lumber would be greatly facilitated and the cost to the buyer reduced, thus enabling him to pay a higher price to the manufacturer.

The Ontario Lumbermen's Association recognize the necessity of a more systematic grading of lumber, and have appointed a committee to prepare a set of rules. These will no doubt apply more particularly to the production of the Georgian Bay district, and may not be sufficiently comprehensive to be accepted as provincial rules. In any case, we welcome them as indicative of a progressive movement, and in the hope that they may ultimately lead to the adoption of standard inspection for the province by statutory law or by the universal approval of the trade.

INTERIOR FINISH.

It is not necessary to go out of Canada to procure handsome woods for interior finishings. For dark woods we have walnut, cherry and black birch, and for medium woods we have several of the oaks—white, red and black—which, when quarter sawn, equal, when properly finished, any oaks in the world for fineness and variety of grain and color. Then we have the despised butternut, three or four kinds of ash, the elms, whitewood, basswood and white pine. Cherry, grown on low loamy land, is the peer of mahogany, and is passed off for that wood as often as it passes for cherry. It has a fine silky grain, and, if properly sawn, is veined as richly as mahogany, and will take a finish equally as well. Unlike mahogany, however, it is apt to warp and twist out of shape if not held in position. It is an excellent wood as a veneer on good pine cores. It may be easily darkened by staining the filler with some spirit stain before applying.

Black birch is almost as fine a wood as cherry, and takes a finish nearly as well. As a rule it is easier worked than cherry, does not cost as much, will last as long, and makes a very handsome finish. Birch may be stained almost as dark as rosewood by using a spirit stain before filling and then staining the filling. It can be polished until it is as glossy as a polished mirror. White oak, quarter-sawn and well-seasoned, makes on the whole the most durable and the most effective finish for rooms that are often used, or for halls or public rooms; and it has the quality of improving with age, something which cannot truthfully be said of many other woods. It is always better left in its natural color, which at first may be a little harsh, but it soon tones down to a soft, pleasing tone that is soothing to the artistic eye. Any of our oaks may be employed for trimmings, panel work, stairs, turned work, veneers, flooring or fittings of any kind. They are strong, durable and safe and not very difficult to work. Ash makes excellent chamber finish; it is bright, cheery, fantastic in grain, strong, and is not apt to get distorted or out of shape. It also makes excellent fittings for kitchens, pantries and similar work. Black ash has a grain similar to chestnut and takes stain readily. Furniture made of this wood and stained to imitate antique oak is often passed off as the latter to unsuspecting purchasers. It is a good wood to stand wear, and is especially suited to farm dwellings.

Another Canadian wood that is seldom used in interior finishing is our beech. This wood, when properly filled and polished, has a very pleasing appearance, as it possesses a satiny glow and warmth that is quite charming. As a material for floors, beech ranks in the same class as maple. It is nearly as hard, is some darker and wears just as well. In the lighter woods nothing excels our white maple. This equals the much-extolled satin-wood, both as regards the fine grain and susceptibility of finish; and our bird's-eye or mottled maple equals any light wood in the world in beauty, and it can be polished as smoothly as ebony. Butternut, basswood, elm and white cedar make good material for ordinary work. Butternut, when properly fitted and finished, makes a good showing and serves well in library or parlor, though not as well suited for such work as oak. White pine is the king of soft woods; it is at home anywhere, and, if

finished in its natural state, shellacked or varnished properly, shows up a soft golden glow that is unsurpassed by any other wood. Some of the woods of British Columbia are well adapted for interior finishings, while the coarser kinds make excellent framing timber, scantlings, joists, rafters, etc., etc. There is plenty of timber to satisfy all Canadian requirements within our own boundaries, and it is foolish and wasteful to import foreign woods for interior finishings.

EDITORIAL NOTES.

THE Michigan lumber manufacturers pretend to believe that the manufacturing clause relating to timber will not be allowed to take effect, but that it will be vetoed by the Dominion government. In the face of this pretense, we read that a Mr. Graves, who has for years operated a shingle mill in Michigan, is preparing to build a mill on the Spanish river, Algoma district. This is a forecast of what may be expected when our Michigan friends realize to their own satisfaction that the law is on the statute books of Ontario to stay.

It has not been learned that any steps have as yet been taken by Canadian lumbermen to make a forestry display at the forthcoming Paris Exposition, although goods intended for that purpose must reach Montreal by November 1st of this year. It is improbable, however, that the opportunity thus afforded will be disregarded. Whatever is done by the government should be supplemented by exhibits by individual lumbermen, or by the united efforts of the trade, so that the immense timber resources of the Dominion shall be fairly represented. The distribution, at the Exhibition, of literature descriptive of our forest wealth might also prove of advantage to this country.

THERE is, beyond a doubt, a great future for the pulp industry of Canada. If we are to judge by the number of pulp mill projects now being exploited, a wonderful growth of the industry will be witnessed within the next few years. In New Brunswick, two mills are under construction at St. John, and at St. Stephen, Bathurst and Fredericton new mills are projected. In Nova Scotia an American syndicate is about to build large mills, the town of Parrsboro is moving in the direction of securing a mill, and on the Sissiboo river another mill is likely to be built. At Ottawa, Petawawa, Port Arthur and Rat Portage, in Ontario, capitalists have in view the erection of pulp mills, and even in Manitoba there is a good prospect of a mill being established, Mr. J. A. Christie, of Brandon, being the promoter. These do not include all the proposed pulp manufacturing plants in Canada. It is improbable that all the projects being exploited will be carried to completion—that could scarcely be expected—but the interest shown in the industry will surely result in a healthy development.

THE question of insurance is now engaging the attention of several lumber associations in the United States. The trustees of the National Wholesale Dealers' Association have obtained statistics showing that whereas \$2,500,000 had been paid in premiums by the members, but \$1,000,000 had been recovered as compensation

for losses sustained. It has been decided to make an effort to secure an arrangement whereby the members of the association by combining can obtain a reduction of 50 per cent. in their rates. The Northwestern Lumberman's Association is reported to have met with good success in the working of a mutual lumber insurance association. In the five years of its existence the rates have been greatly lowered, and last year the cost to policy holders was but 36 per cent. of the rate at which their policies were written. That this question has been taken up by the Western Retail Lumbermen's Association of Manitoba speaks well for the foresight of the members of that organization. It was feared, however, that the membership was not sufficiently large to permit of the successful carrying out of the scheme.

THE results being accomplished by the National Wholesale Lumber Dealers' Association of the United States, a report of whose convention appears elsewhere, emphasize in a practical way what we have previously said as to the benefits of lumber associations. This organization is proving of great advantage to its members. The feature of the last meeting was the agreement entered into by which the retail dealers are to have their legitimate trade protected from the onslaught of certain wholesale dealers, while the retailers in turn agree to buy, as largely as possible, from members of the Wholesale Dealers' Association. In connection with the association, there is a Bureau of Information, from which a reliable report can be obtained on almost any lumber dealer in the United States or Canada. These reports are compiled from many different reports sent in by members of the association who have had personal dealings with the person enquired about, and are usually very complete. A system of insurance has also been inaugurated by the association, by which a member can secure a lower rate than he can through any legitimate company, and, in addition, share in the profits which may accrue from the saving in the premiums. These, and other advantages, such as the railway freight claim, legal, arbitration, and lumber inspection departments, serve to show the usefulness of the association to its members. It is possible that, through the efforts of Mr. E. C. Grant, the next convention will be held in Ottawa, when it is hoped to increase the membership of Canadian lumbermen in the association.

QUESTIONS AND ANSWERS.

"R.K." writes: Would you inform me as to the number of railroad ties and value of same imported into Canada from the United States during the years 1897 and 1898?

ANSWER.—The statistics kept by the Department of Trade and Commerce of the import of railroad ties has included fence posts also, so that the item reads "Fence Posts and Railroad Ties." These were imported in the year 1897 to the value of \$91,009, and in 1898 to the value of \$68,236. The quantities are not given.

In Maine there are seventeen spool factories, and the white birch forests of that state annually supply the material for 300,000,000 spools on which there is subsequently wound about 50,000,000,000 yards of thread.

THE LAKE ST. JOHN REGION WITH REFERENCE TO THE PULP AND PAPER INDUSTRY.*

By J. C. LANGELIER, Superintendent of Forest Rangers.

THE hydrographic basin of which Lake St. John constitutes the centre embraces within its extreme limits nearly 175 miles from south to north, and about 225 from east to west. The area comprised within these limits or the superficies of the territory drained by the rivers whose waters flow into the great lake, is about 30,000 miles, or 19,200,000 acres. The area of Maine is equal to that of all the other New England States. Nevertheless, it does not exceed by 2,000,000 acres that of the territory of Lake St. John, which exceeds by 1,808,640 acres that of New Brunswick, by 5,819,520 that of Nova Scotia, is double that of Denmark and of Holland, and nearly three times that of Belgium. Lake St. John forms the hydrographic centre of this vast region. Its elevation is about three hundred feet above the level of the sea. In its greatest length between the mouth of Belle Riviere and the estuary of the Mistassini, it measures 27 1/4 miles and 20 in its greatest width from the estuary of the Peribonca to that of the River Ouatchouan. The perimeter of this lake forms a line 85 miles long and its superficies is 365.4 miles or 263,856 acres.

The principal rivers that fall into Lake St. John are: On the South-east the Belle Riviere, about a hundred feet wide, 45 miles long, and whose chief tributary brings the waters of Lake Kinogamichiche and forms a water-fall sixty feet high at a short distance from the village of Hebertville; on the south the Metabetchouan or riviere du Poste, about 50 yards wide and 80 miles long; on the south-west the Ouatchouan, about 60 yards wide and 68 miles long; on the west the Chamouchouan, which divides into branches 92 miles from Lake St. John, continuing under the same name to the south-west to 170 miles from its mouth, while the branch called la riviere du Chef, which is larger than the other, runs towards the north-west; on the north-west the Mistassini, whose main course is over 200 miles long without counting its three great tributaries, the Assiemska, the river aux Rats, and the Mistassibi; on the north the Little Peribonca, about sixty yards wide and 80 miles long; on the north-east the great Peribonca, which is over 350 miles in length, and the largest of all the rivers that flow into Lake St. John.

WATER POWERS.

It would be difficult to imagine a region where in the superficial conformation and the surface elevations of the soil are better adapted for producing water power than that of Lake St. John. Starting from the shores of the lake on the north and north-west, the land rises by steps from one plateau to another. These steps are marked at several places by ridges forming so many obstacles to the course of the rivers which overcome these obstacles and, descending from one plateau to another, they form cataracts frequently of considerable height.

A line drawn around Lake St. John, a dozen miles to the north of the lake, thirty to the north-west, fifty to the west, two to the north and ten to the east, would circumscribe the water-powers set forth in the following table:

Rivers.	Motive Power.
Great Peribonca	301,025 horse power.
Little Peribonca	1,500 " "
Mistassibi	75,000 " "
Mistassini	60,000 " "
Au Rat	22,723 " "
Assiemska	15,000 " "
Chamouchouan	100,000 " "
Au Sammon, aux Iroquois and Auitchouaniche	2,000 " "
Ouatchouan	33,000 " "
Metabetchouan	2,500 " "
Belle Riviere and Aulnaes	500 " "
Little Discharge	25,000 " "
Grand Discharge	15,000 " "

Total... 653,248 " "

FORESTS AND TIMBER.

We have seen above that the territory of Lake St. John covers an area of 19,200,000 acres. Of this less than 500,000 acres is under cultivation or cleared, and the remainder is covered by forests. The principal kinds of timber are spruce, balsam fir, white birch, cypress and pine. White, black and red spruce constitute more than 75 per cent. of the timber. Fire has ravaged this territory, in many places. The disastrous effects of the great fire of 1875 in the Mistassini region are no longer visible; the second growth is as fine as the first, as regards the size of the trees, while the wood is sounder and less knotty. In the Peribonca region the timber is rather small for saw logs, but is of the best kind for pulp.

The quantity of pulp wood in the Lake St. John region is practically unlimited. Taking only 5 cords to the acre as the average, we obtain fabulous results, which clearly show that this immense territory can provide an almost inexhaustible supply of raw material.

The basin of the Great Peribonca covers an area of 8,320,000 acres. There is certainly no exaggeration in estimating at five cords per acre the quantity of black and white spruce suitable for pulp making in this region, which would make 41,600,000 cords.

The basin of the Mistassini covers about 4,800,000 acres of wood-land, which, at five cords per acre, would give 24,000,000 cords of pulp-wood.

The region drained by the Chamouchouan contains at least 3,200,000 acres of forest, which would also give 16,000,000 cords of pulp wood at the same rate of five cords per acre.

In the remainder of the Lake St. John territory, that is the southern part drained by the Ouatchouan, Metabetchouan and other rivers, there are also 3,200,000 acres of forests of coniferous trees, which could also give 16,000,000 cords of pulpwood and even more.

All these data may be resumed as follows:

Region	Area.	Quantity of Pulpwood.
Peribonca	8,320,000 acres....	41,600,000 cords.
Mistassini	4,800,000 " "	24,000,000 " "
Chamouchouan	3,200,000 " "	16,000,000 " "
Ouatchouan	3,200,000 " "	16,000,000 " "
Total	19,520,000 acres	97,600,000 cords.

These figures represent only the product of the first cut. It is well known, however, that if carefully attended to, spruce forests grow up again in twenty years.

PULP INDUSTRY.

Wood and motive power are the principal elements needed for making pulp. Now, in examining the foregoing data, we must conclude that there is no country or region better adapted to this industry than the immense territory of Lake St. John, especially the northern and north-western portions. Estimating the quantity of wood required to make a ton of pulp at 1 1/2 cord, the maximum figure, the 97,600,000 cords of wood in this territory would permit of the manufacture of 65,066,666 tons of pulp, or 1,000,000 tons per annum for 65 years. The CANADA LUMBERMAN on the faith of reliable statistics said

in December last that the paper mills of the United States consume 1,000,000 cords of wood annually. The Lake St. John territory could supply this quantity for 65 years merely with the first cut of its forests of coniferous trees; this will give an idea of the importance of this territory with reference to the pulp and paper-making industry.

In Europe, Sweden, Norway and Germany are the foremost in the making of wood pulp. They supply the greatest quantities of this material to England and to France, besides what is sent to other large centres such as those of Belgium, Spain and Italy. According to the statistics published in the Forestry Magazine in October, 1884, the total area of the forests of each of those northern countries at that date was as follows:

Sweden....	40,656,883 acres, or 40.43% of whole territory.
Norway...	17,279,000 " 22.30% " "
Prussia...	20,097,014 " 23.35% " "

During the fourteen years that have elapsed since then, the wood pulp and other similar industries must have disposed of a considerable portion of those forests. This does not prevent the Scandinavian countries from continuing to export yearly about 500,000 tons of pulp in the shape of raw material or of paper, after supplying all the needs of domestic consumption.

The coniferous forests of the region of Lake St. John exceed in extent those of Norway, are nearly equal to those of Prussia and to half those of Sweden. It is acknowledged that our timber—black and white spruce—is of superior quality to that of Scandinavia and Prussia.

All the above gives an idea of the possibilities of the pulp and paper industry in the Lake St. John region. If the requisite capital be devoted to it there is enough wood there and enough motive power to supply wood pulp to half Europe.

FACILITIES FOR ESTABLISHING FACTORIES.

The great water powers of the Peribonca and Mistassini are connected with the railway by means of the steamboats running regularly on Lake St. John. The transportation of building materials, and especially of heavy pieces of machinery, could therefore be easily effected without heavy expense.

Most of the products of the factories, pulp and paper, would be exported chiefly to Europe. In summer the shipments could be made with advantage from the port of St. Alphonse at the head of Ha! Ha! Bay. This bay, which measures 8 miles in depth by 2 in width, is beyond a doubt one of the finest seaports in Canada. Protected against the south, west and north winds by the mountains that surround it on those sides, it is exposed only to the easterly winds, which seldom blow, and which are in great part kept off by the high capes at the entrance of the bay. The depth of the latter is considered everywhere, varying from 5 to 80 fathoms at low water, and its clay bottom affords good holding ground for anchors. At the St. Alphonse wharf the water is 29 feet deep at low tide in spring tide and 47 at high water. The entrance of the bay is only 53-59 miles from Tadoussac.

From the mills on the Great Peribonca and Mistassini, pulp and paper could be carried in steamboats to Roberval and thence shipped to Chicoutimi or Quebec. These means of transport already exist. But if the undertaking were in the hands of a powerful company with the requisite capital, it would be much more advantageous to connect the mills themselves and the port of St. Alphonse by means of an electric railway which would be about 30 miles long.

With the water powers and the wood in the Lake St. John territory, it would be possible to produce over 500,000 tons of paper a year, and this ad infinitum. The annual value of this product would exceed \$20,000,000, which gives an idea of the resources and wealth we possess in that corner of the province, if its forests are wisely preserved and intelligently utilized. It is doubtful whether the Yukon, with its gold, can produce as much for as long a time.

* Abstract of a report submitted to the Department of Woods and Forests of the Province of Quebec.

THE RETAILER AND Wood-Worker

HOODING AND HOODING EXHAUST FANS FOR MILL USE.

ALMOST every planing mill or wood-working factory of the present time uses the exhaust fan for the purpose of taking the shavings and dust from the machines and depositing same in a suitable shavings vault near the boiler room, where they are used wholly or in part for fuel. In many factories, writes "G. T. L." in the Wood Worker, this system does not give full satisfaction, and is a constant source of trouble and expense. While some mills get fairly good results, it is usually at great expense of power and consequent cost of fuel, as well as the continual patching up of pipes, hoods and minor details. In every case where the fan does not work properly you can trace the trouble either to the imperfect way in which the pipes from the machines to the fan are rigged, the wrong method of hooding around the cutter heads, or the way that pipes from the machine enter the main pipe.

There is no good reason why an exhaust fan should not work satisfactorily as any machine in the shop. If the fan is of suitable size and properly piped to the machines it will not cause more expense, over the usual wear and tear of the work it does, than other machines. A man would be considered a fool who tried to make a pony do the work of a horse, or to carry a ton of coal in a light buggy, or if he used a trotter for a trotter and a coal cart for a road wagon, although he could do the latter with better results than the former. So it is with the fan. You can't expect a small fan to do good work beyond its capacity. A too large fan is equally bad, as it uses power that could be better employed, for the average mill, especially where heavy planing is done, is usually short on power.

Having occasion during many years to visit the different wood-working factories of the country, I found the shavings (or, rather, how to get rid of the shavings) problem a hard one for the mill man to solve, and it became a sort of hobby to me. It was a benefit to me in my business and I was often able to point out where trouble could be remedied and power saved. I became interested in the subject and made it a habit to inspect thoroughly every pipe system I came across. From what I have seen, and from experience, I will give my ideas as to fans, piping and the proper way to hood machine cutter heads.

In the first place, the size of fan to be used depends entirely on the number of machines used and the class of stock they have to work on. The figuring out of pipe area is all right from the blower man's idea of the fan you ought to have, but you want a fan to pull shavings, not air, and his figures are often on the too-big side, because the sale is better for him. The result is unnecessary expense for piping and waste of power. If a 24-inch planer is used for heavy dressing on yellow pine, cypress, white-pine, etc., it takes a larger pipe from the cutter heads to carry the shavings to the fan than it would if the machine was working on hardwoods or kiln-dried stock. A 36-inch fan might work perfectly in a plant of several planers working on the latter stock, while a 30-inch fan might stall on the same lot of machines working on the former stock. So in selecting a fan, the

work the machines have to do is first to be considered, and second, the number of machines in use.

I have noticed that a six-inch pipe for the top head on a 14-inch planer and matcher, four-inch pipe for the lower and adjustable side head, and three-inch pipe for the guide-head, give the best service where the machine is used for jobbing or custom work; and one inch larger diameter of pipes for machines where the cuts are heavy or the machine is used for dressing wide stock at rapid feed. For a 24-inch machine eight-inch pipe for top head, six-inch for lower head and five-inch for side heads are best, and for molding machines six-inch pipe for the top head and four-inch for the others. For smaller machines a four-inch pipe works the best. The size of pipes given are large enough to remove all shavings as made (provided the hoods to cutter heads are right) and will not clog if the fan is working up strong to speed as called for.

Many mill men think a hood should set as close as possible to the cutter head and enclose it entirely. This is a mistake, and many a mill that is now short of power and getting poor results from the fan, could make a wonderful change by simply altering the hoods on the machines. A cutter head running at any speed is a fan in itself. The faster it runs the more blast it gives, and this force will throw shavings for many feet from the knives guided by the usual shaving bonnet as furnished with the machine. Now enclose the cutter head as closely as possible, and, dressing stock the full width of the knives, the head is practically encased and the shavings will be carried around with the head until clogged up and the head stalls. If the fan is strong enough to overcome the force of the cutter head, then you get rid of the shavings, but the fan has to do just that much unnecessary work and at double the power required.

The hood or funnel, as it is sometimes called, should be made so it will catch the shavings as they are thrown into it from the cutter head force. Fig. 1 will give the idea. The opening to the hood should be clear of the knives so the

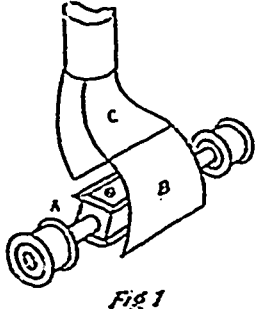


Fig 1

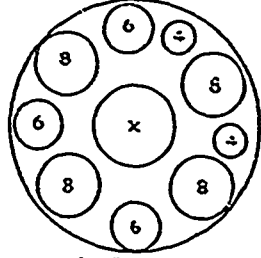


Fig 2

shavings can be thrown into it, then the fan can do its work properly. Try this by taking a handful of shavings and throwing them into an open pipe, and see how quickly the fan will take them up. Shavings are taken up by the fan by the suction of air through the pipes, and you have to allow air to enter or you get no suction. So, if you hood your cutter heads tightly, where does the suction come in? From the machine to the fan the shavings are drawn by this suction or exhaust force, but leaving the fan are forced out by the same air as it is discharged, the same

as a blast fan. Many fans do not work right because the discharge pipe is cramped at some point or has too many bends or turns in it. This prevents the free discharge of air and shavings, causing a back pressure that the fan is overworked to contend with, and of course at so much greater expense of power and the wearing out of belts, and piping at the bends or turns.

To select the suitable size fan, take the diameter of pipes in inches necessary to take care of each machine, add them up and divide by three. This will give you the diameter of inlet for fan. For instance, four machines taking eight-inch pipe make 32 inches, three with six-inch pipes make 18 inches, and two with four-inch pipes make eight inches, or a total of 58 inches. Divide this by three and you have 19 1/3 inches, which is the diameter for the inlet to proper size fan for these machines. If you make it a trifle larger you will have plenty of spare fan to take care of two or three smaller machines if wanted. Fig. 2 will show this clearer.

If you have more machines to take care of than a single fan of 24-inch inlet will handle, a double fan is preferable to a single one of larger size. The best is to provide two single fans, or better yet, one fan for each floor or section of floor. If only one fan is used and it is disabled, the whole factory has to stop, while by using two or more fans only a part of the mill is hampered in case of trouble. The discharge pipe from the fans may enter a common discharge pipe at a point near the shavings vault, or the dust arrester, if one is used. The placing of a fan is very important, so the discharge will be as straight or direct as possible, avoiding short bends or perpendicular pipes. If turns are necessary, make them as wide as possible, and for elevations give as much incline as you can. Remember you can draw or pull around most any bend or corner, but to discharge or throw around a corner is not so easy. In the first case you coax around, and in the second you bang around, and extra force is required at every bend or turn.

After placing the fan, carry the inlet pipe full size to the first machine (not necessarily the one that does the heaviest work), and if you want the best system, one that will be the cheapest in the

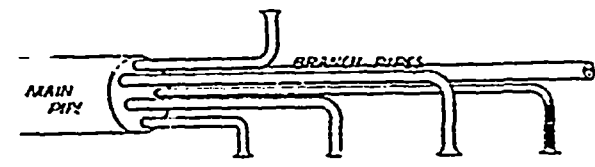


Fig. 3

long run, head the pipe up right there. From this heading run separate pipes (see Fig. 3) to each machine. For illustration, take a flute and blow through it and the first hole gives its note, and so on; but open up again and the first hole responds. If you have wind enough to fill the flute to more than three or four of the holes can discharge, you can get the notes, but the first one will be the loudest, and so on down until the wind dies away. Now, if you take as many straws as there are holes in the flute, make them of different lengths and place the even ends in your mouth and blow, you will discharge as much air through the longest straw as the shortest, all getting their full capacity. Immerse the straws in water and draw or suck on the even ends and you will get just as much water through the longest straw as the shortest. Barring a little more friction the longest pipe from a machine entering in the heading of the main pipe (or, similarly used, the mouth) will suck or exhaust equally as well as the shorter one.

This method of piping is not very much more expensive than the flute system, and certainly gives better results: first, as to its working; second, expense of keeping in repair and freedom from delays by clogging. If the flute system of piping is used don't make the mistake of running the main pipe tapering; it's wrong—dead wrong.

THE NEWS.

If you are to pull shavings from the rush or current of air as it is exhausted, you certainly must lose force by gradually enlarging the suction pipe from a small diameter up to the full size of fan inlet. Take an ordinary funnel. Place the large end in your mouth and draw air through it. If you can fill the funnel end you get only the amount of air that you are able to draw through the small end, and to all intents and purposes a straight pipe of diameter of the small end would give same results. The same applies if you blow or discharge air. Keep your main line pipe to the fan, of regular diameter, and the discharge pipe full diameter of the outlet.

The branch pipes from the machines should enter the main pipe at the sides, at, or above, the center line, or at the top (never on the bottom), and with a turn pointing to direction of fan. The smaller pipes from side heads should enter the branch at nearest convenient point. The speed of the fan should be as catalogued by the maker, and if properly piped, will do its work easily and well to its full capacity. If the fan is too small for the work required, from adding new machines on from time to time, don't speed it up or run chances of a smash-up, or load the belt with a heavy tightener pulley and have trouble with the boxes or journals, or make the mistake of putting in a larger fan and expect it to work with the same piping as old one, but get an additional fan to do the extra work, required and thus remedy the trouble.

In equipping a new factory with the exhaust fan system, use the same care and judgment as you do with the rest of your plant. Lay out what you want or need and then get a good company to make the pipes and put them in; or your mill foreman will know from experience about what is the best way to get good results, so don't leave this work all to the pipe man. You will be paid for your trouble in the end if you study it up and plan yourself, or give the pipe man pointers. Where the pipe system is up and not working right, perhaps you may get some hint from this article that will enable you to locate the trouble and remedy it.

TRADE NOTES.

The Chicago office of the Magnolia Metal Co. has been removed from the Traders' Building to the Fisher Building, 251 Dearborn street.

McKay Bros., East Hatley, are putting in one of the Jenckes Machine Co.'s steam plants, consisting of a slide valve engine and horizontal tubular boiler.

W. D. Pettigrew, of Winnipeg, who is developing mines at Wabigoon, Ont., has placed an order with the Jenckes Machine Co. for hoisting, crushing and pumping plants.

Thomas Lord, of L'Epiphanie Station, Que., is increasing his plant by the addition of a 35 h.p. engine, from the well known builders, the Jenckes Machine Co., Sherbrooke, Que.

The Lake Manitou Gold Mining Co., of St. Paul, have placed an order with the Jenckes Machine Co., Sherbrooke, Que., for a ten stamp mill to be erected on their property near Wabigoon, Ont.

The Defiance Machine Works, of Defiance, Ohio, are distributing to the trade a large hanger, on which is shown illustrations of some seventy special patent wood-working machines which they manufacture for making hubs, spokes, wheels, wagons, carriages, handles and hoops.

Geo. Long, of Sherbrooke, whose increasing business requires more motive power, is about to install a 25" Crocker turbine, in order that production may cope with the demand. This order was placed with the Jenckes Machine Co.

"WANTED AND FOR SALE"

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

—McIntosh Bros. have erected a new saw-mill near Caribou, B. C.

—T. W. Gray, saw miller, Nelson, B. C., has sold out to Chas. Hillyer.

—W. Bladow is making preparations to rebuild his sawmill at Killaloe, Ont.

—The Cranbrook Lumber Co., of Cranbrook, B. C., purpose building a new saw mill.

—Chew Bros., of Midland, Ont., are erecting a box factory, 120x42 ft., at Dollartown.

—W. B. Fairbairn has disposed of his lumber business at Emerson, Man., to J. A. Badgley.

—H. V. Boote has purchased the lumber yard of Thos. Rutherford at La Riviere, Man.

—Magee & Thompson have purchased the lumber yard of R. W. Gibson at Sinaluta, Man.

—T. Burrows, M. P. P., of Winnipeg, will rebuild his saw mill at Pine River recently destroyed by fire.

—Rhodes, Curry & Co., of Amherst, N. S., have established a branch of their works at Halifax, N. S.

—G. B. Housser & Co., lumber dealers, Portage la Prairie, Man., are opening a branch at Macdonald.

—T. G. McMullen, M. P. P., has made extensive repairs and additions to his saw mill at Hartville, N. S.

—An exchange states that the Victoria Harbour Lumber Co. are considering the removal of their mill to Midland, Ont.

—The Southampton Manufacturing Co., of Southampton, Ont., are building an addition to their factory, and will put in a new dry kiln.

—The fourteenth annual meeting of the St. John River Log Driving Company will be held at Fredericton, N. B., on Wednesday, April 5th.

—The Bryan Manufacturing Co., of Collingwood, Ont., are just completing an addition to their planing mill, in which new machinery will be installed.

—R. C. Ervin, of Shubenacadie, N. S., has disposed of his electric light plant and intends engaging in the lumber business at Falmouth and near Windsor.

—James Playfair & Co. have removed their shingle mill from Sturgeon Bay to Midland, Ont. It is likely that Craighead Bros. will again operate the mill this season.

—The late John Larkin Cook, lumber merchant, of Toronto, who died in January last, left an estate valued at \$396,000, consisting of stock in the Cook & Bros., Lumber Company.

—Estey & Thompson, of Fredericton, N. B., are said to have decided to rebuild their saw-mill at Shogamoc, although it is improbable that work will not be commenced before next summer.

—The Ontario Legislature has passed a bill empowering the town of Lindsay, Ont., to grant a bonus of \$2,000, to Rider & Kitchener to establish a veneer and excelsior factory at that place.

—The C. Beck Manufacturing Co., of Penatanguishene, Ont., are putting in new box-making machinery. The company expect to keep both of their saw mills in operation throughout this season.

—Gilmour & Co., of Trenton Ont., are remodelling their large saw mill at that place, and purpose engaging extensively in the manufacture of boxes, for which purpose modern machinery will be installed.

—W. Craddock, of Huntsville, Ont., who a short time ago secured a contract for broom handles from a Liverpool firm, has completed his first car load. Mr. Craddock is purchasing large quantities of basswood logs.

—The Bronsons & Weston Lumber Co., of Ottawa, has made application to parliament to change its name to the Bronson Company, and for permission to carry on business as manufacturers of commercial products.

—Robert Watt, of Warton, Ont., has just rebuilt his sawmill, putting in additional power and new machinery. The improvements will double the capacity of the mill, which will commence operations upon the opening of navigation.

—The announcement is made that after May 1st the wholesale lumber business carried under the style of John S. Mason & Co. will be continued by Ichabod T. Williams & Sons, at 11th ave. and 25th street, New York city.

—The Canadian Pacific Lumber Co. have refitted and increased in capacity the sawmill at Port Moody, B. C. Arrangements have also been made to put in an improved dry kiln. The daily capacity of the mill will be between 50,000 and 75,000 feet per day.

—The Laurentide Pulp & Paper Co. are building a large sawmill at Grand Mere, Que., I. N. Kendall, of Ottawa, having the contract. The mill will cost \$30,000, and the machinery will be supplied by the Wm. Hamilton Manufacturing Co., of Peterboro, Ont.

—It is said that T. Ludgate, of Peterboro, Ont., has secured from the Dominion Government a lease of Dead Man's island at Vancouver, B. C., and that he has agreed to build thereon a large saw-mill, expending \$250,000, and employing several hundred workmen.

—J. W. McCrae, of Tilsonburg, Ont., has purchased the foundry of John Makins at Lindsay, Ont. Extensive

improvements will be made to the foundry and considerable machinery added. Mr. McCrae intends to manufacture circular sawing machines, shingle machines, mill fittings, engines, etc.

—Kitteridge, Smith & Co., of Shebrooke, Que., have invented a machine for making railway ties which is expected will have a capacity of about 2,000 per day. The ties are planed on two sides and can be produced at less cost than by the ordinary method. The machine is being built by the Jenckes Machine Co.

—D. C. Cameron, manager of the Rat Portage Lumber Co., states that the building of the proposed saw mill at Winnipeg will not be commenced until next fall, but that operations will be carried on throughout the winter. The Rat Portage Co. are this spring expending about \$20,000 in improving their manufacturing plant at Rat Portage.

—Oliver Haywood is erecting an extensive saw and planing mill at Whycomough, C. B. It will be operated by steam, and when completed will be the largest mill in Cape Breton. The boilers and engines are from the works of I. Matheson & Co., New Glasgow, and the other machinery was supplied by the Robb Engineering Co., of Amherst, N. S.

—C. H. Witthun, of Hepworth Station, Ont., is removing his saw mill from Shallow Lake to Warton. The other saw mill at Hepworth, formerly owned by C. H. Witthun & Co., has been converted into a factory for manufacturing crokinole boards and other small wood-ware. The merchantable timber in the vicinity of Hepworth is almost exhausted, and consequently the owners of mills are looking for new locations. J. E. Murphy will remove one of his mills this summer, and the other one about a year later.

—As indicating the fluctuation in the minds of those owning timber lands in Nova Scotia regarding their value, the following is given: N. N. Bentley, of Fine Islands, purchased what is known as lot 6, of Grand Sane, from Mark Fulmore, for \$1,000. This same block was part of a block of land that some years ago was sold for \$125. Mr. Bentley bought it a few years ago for \$140, lumbered it and sold it for \$250. The other day he bought it back for \$1000. Mr. Bentley also purchased the timber on the lot adjoining. About fifteen years ago the lot was sold to John W. Graham for \$400. Mr. Bentley gave \$3,000 for the timber of the property. He expects to cut thereon four million feet.

—Speaking of the export lumber trade, John Hendy, manager of the Hastings Sawmill Co., Vancouver, B. C., said the prospects were never brighter. In his opinion all the concessions now being granted to European powers by China mean the construction of railways, and where railways are constructed there will be found Pacific Coast lumber. At first it was thought that the lumber for the Chinese railways would be sent from Russia, but the Russian lumber was found to be too brittle for railway construction, and instead of shipping lumber Russia is now importing it from British Columbia and Puget Sound for the Trans-Siberian line. Then the Australian trade is better than it was, and Mr. Hendy predicts that it will be still better when the federation of the Australian colonies has been completed, as it will be easier for Canada to make reciprocal arrangements with a united colony than with several small ones.

—Mr. Edmund M. Walker recently read an interesting paper on "Forest Trees of Canada" before the Canadian Institute, Toronto. In opening Mr. Walker gave a brief account of the extent of the burnt areas of forest land in Canada, the resulting evils being more than the mere loss of timber. As an instance of this, a comparison was made between the present climatic conditions and the lessened population of southern Europe and eastern Asia with those of twenty centuries ago. This great change is largely due to the clearing away of the forests, and was shown that Ontario has already suffered to some extent in the same way. In the Maritime Provinces, however, the effect of the removal of the woods is quite different, the soil of the clearings being made wetter than it originally was by the coming in of the sea air. The distribution of the various forest belts in Canada was then given, with brief descriptions of the appearance, habits and geographical range of the various trees. Most of the forests of Canada are included in an immense belt called the sub-arctic forest belt. The remainder were grouped into those of the Maritime Provinces, Quebec, Ontario, the Rocky and Selkirk mountains, and the Pacific coast. The paper was illustrated by lantern slides, showing twenty-five or thirty species of Canadian trees.

Mr. Erastus Wiman, on behalf of some friends in Canada, has presented to Governor Roosevelt a bicycle made entirely of Canada ash, and called the "Wooden Beauty".

A copy of the second annual report of the Forestry Reserve Board of the State of New York is to hand, and found therein are details of what has been done towards establishing a forest reserve. The board was organized in April, 1897, and an appropriation of \$1,000,000 made for the purposes specified in the Act. This was supplemented at the legislative session of 1898 by a further appropriation of \$500,000, making a total of \$1,500,000 thus far placed at the disposal of the board for the purchase of forest lands, and for the expenses incidental thereto. Up to December 31, 1898, the state had acquired title by purchase to 259,634.72 acres of forest land in the Adirondack Park, for which there was paid, in the aggregate, \$1,108,143.15, or \$4.26 per acre on the average.

WOOD PULP DEPARTMENT

THE PROCESS OF MANUFACTURING MECHANICAL WOOD PULP.*

BY W. A. HARE.

(Continued from March issue.)

PUMPS.—The hydraulic pulp grinder is supplied with water under two different pressures. The high pressure is used for pressing the wood against the stone, and varies about 100 pounds per square inch, according to the size of the grinder cylinder and the general practice of the operator. The low pressure is used for backing the piston and follower off the wood, and is only a few pounds per square inch. The high pressure system is supplied by a back-gear triplex pump, such as is shown in Fig. 8. This style of pump is manufactured by the Northey Manufacturing Company, Limited, of Toronto. It is designed for high pressures and heavy service, is well made, and reliable. A centrifugal pump supplies the low pressure service, to which are connected fire-hoses, cleaning-hoses, wet machine sprays, and the low pressure piping in the grinders. In large mills, it is better to install a special fire pump; but for small ones it is more economical to pipe direct to the low pressure system, and use a slightly larger pump than is required for ordinary purposes. Fig. 9 is a very good type of a centrifugal pump. It is made especially for this service by the Northey Manufacturing Company. A good feature about this particular style is its reversibility, which greatly simplifies its installation. Stuff pumps are used to handle the mixed pulp and water, and for mechanical pulp the centrifugal pump is very satisfactory. A pump as is shown in Fig. 9 is suitable for this purpose. Stuff pumps handle the pulp in a large amount of water; generally the water contains 1 per cent. of dry pulp by weight. The speed and horse power required for these pumps depends on the elevation of the discharge orifice above that of the suction. Many mill designers prefer to drive the pressure and stuff pumps by belt from the grinder shaft. In small mills this may be as good a method as any, but it is open to serious objections. Owing to the varying conditions under which the grinders are working, the speed cannot be kept constant, resulting in a varying discharge from the pumps. In the case of the stuff pump this is objectionable, as it causes trouble for the wet machine man in regulating the supply of stock from the vat. The best method of supplying the high pressure system is to do so from a separate triplex pump belted to each grinder shaft. If there are two grinders coupled together, a 3" x 4" triplex, at 45 revolutions per minute, would supply them. This may cost more than one large pump intended to supply all; but if that pump is shut down by accident or otherwise, the load is immediately thrown off all the grinders at once, which allows them to speed up.

It is exceedingly dangerous to allow any grinder to run

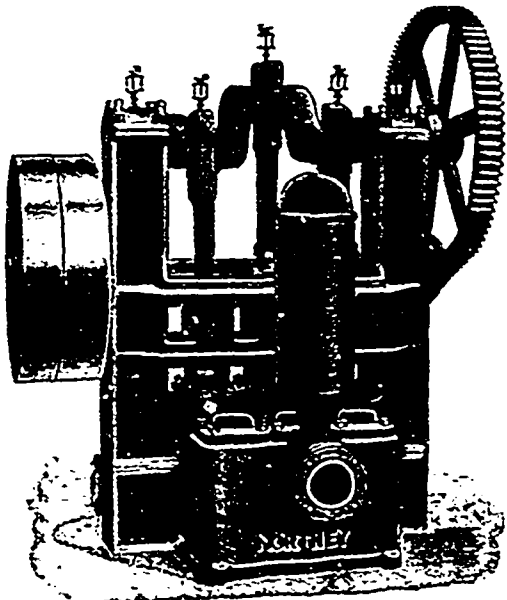


FIG. 8.—TRIPLEX PRESSURE PUMP.

very much above its normal speed. Owing to cracks in the stone which are not always apparent on the surface, a stone may fly in pieces even at moderate speeds, and is very liable to do so if the grinder is allowed to run away. By supplying all the grinders from a common pipe system, and driving a separate pressure pump from each grinder shaft to supply the system, we have each grinder perfectly independent of the others, and we are, therefore, at liberty to shut down any one we please without regard to the others. When a grinder is started up, its pump is started also, and takes its share of the pumping, and we

always have the supply directly proportional to the demand. If a pump in the line should become disabled, its check valve, placed on its discharge pipe, instantly closes, cutting it out of the system. The remaining pumps can, for a short time at least, carry the increased load, giving the grinder man sufficient time to shut down the grinder, or to cut out a pocket or two. The grinder which was driving the disabled pump has had no opportunity to race, as the other pumps in the line continue to supply its cylinders with water at almost the usual pressure. This system has, perhaps, the disadvantage of first cost, but even in this particular, when everything is considered, it would be the cheaper method for some installations.

METHOD OF DRIVING AND COUPLING GRINDERS.—

a short bar, and then turning the water on again. This jamming is not so liable to occur with round sticks as it is when the wood has been split. Sometimes, with round wood, the blocks will roll in the pocket. This can be prevented by having strips cast on the follows. When this is not done, it can be remedied for the time by loosening up the pocket, or by repacking. In a good grinder there should be very few chips formed. In many cases, in fact nearly all, this is caused by carelessness in setting the side plates of the pockets. As the wood grinds down to a thin shim, it is carried under the plate, and is not ground. If the plates are just clearing the stone, the wood will be almost completely ground before the shim can get through. Grinders should be provided with suffi-

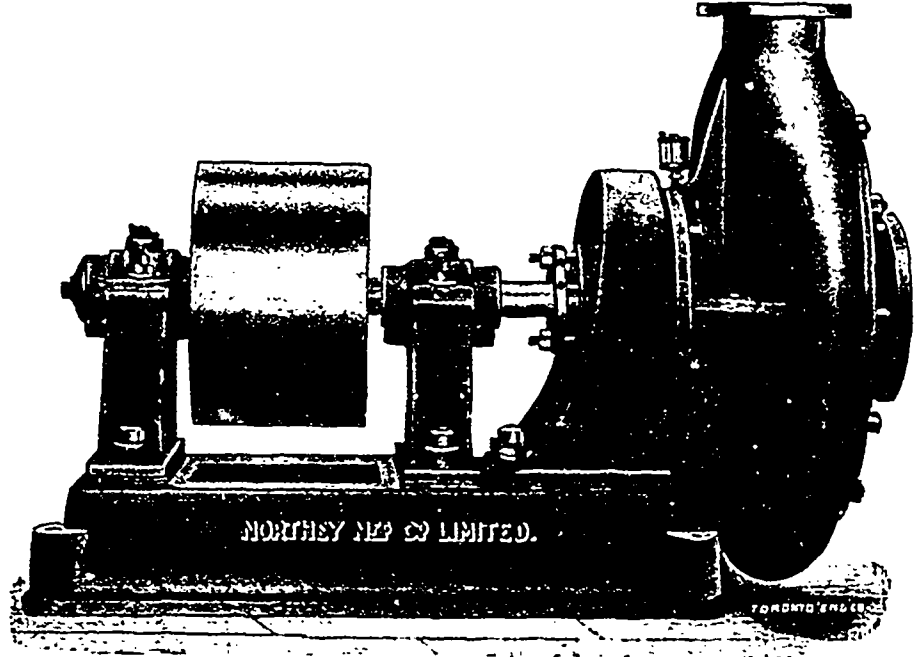


FIG. 9.—HORIZONTAL CENTRIFUGAL PUMP.

Wood pulp grinders are generally run in pairs, coupled direct to the water wheel shaft. Direct driving is the usual practice, which is seldom if ever departed from. In some small plants it might be advantageous to drive a grinder by means of a large belt, but these cases are extremely rare. There is no other method that is practicable. Gearing would be out of the question, as the sudden and excessive variations in the load would render it extremely difficult to keep them in proper repair. In most cases, the only method that commends itself is to couple two grinders on the same shaft, and direct to that of the water wheels. With a certain head, for instance, the wheel that will run with a speed of about 200 R.P.M. would deliver more power to the shaft than is required by one grinder. If another grinder, of suitable capacity, is coupled to this shaft, it gives the correct speed and power for each grinder.

There is another consideration in favor of the above method of driving. If two 3-pocket machines are run by themselves from separate wheels, only two of these pockets can be used at a time on each grinder, the third being retained as a change pocket. If, on the other hand, we have two 3-pocket grinders connected on the same shaft, we can operate 5 pockets altogether, leaving the other one for the change pocket. In this way we have gained the use of an extra pocket on two machines by driving them coupled.

When a stone breaks on the inside machine, both will be idle until repairs are completed. If the outside grinder be damaged, the coupling can be removed, and the inside one run as usual.

OPERATION.—The first thing in starting up a grinder is to thoroughly clean it with a hose. This is to prevent specks from getting into the pulp from dirt collected in the grinder. This should be done once a week, or oftener, according to the make of the machine. The side plates of the pocket should be set down close to the stone, and, as the stone is turned down by sharpening, they should be advanced. A great deal of waste from chips and slivers will arise if this is not attended to. It is important that the supply of water should be sufficient, for two reasons: first, to keep the stone cool, and, second, to supply the ground wood with enough water so that it can be handled easily by the stuff pump. In some grinders the stone runs clear of the water underneath it, and must, therefore, be supplied by sprays near the top, or elsewhere, to keep the stone from heating. In others, the stone runs in a vat of ground pulp and water, which, as the water is changing all the time, prevents heating very effectually. There should be, even in this case, a small spray near the top of the stone, for the purpose of washing the pulp down to the vat as soon as it is ground. The vat underneath the grinder is made by placing a wiper on one side, of a suitable height, so that when the pulp and water flow over it, the stone is submerged to a sufficient depth to prevent heating.

When the wood has been badly packed in the pocket it will jam, and, by bracing against the sides of the pocket, relieve the stone of the pressure. This is easily fixed by letting off the pressure while the wood is loosened up with

enough space between the stone and the sides to allow for the free escape of pulp and water, or else it will flow over the floor when the door is opened. This space should be so constructed as to prevent shims, etc., getting in, which might cause trouble. In some mills machines are used for grinding chips and shims, but, as far as the chips from the grinders are concerned, it is unnecessary unless the grinders are faulty. In any new mill, if good grinders are bought, this will not be required.

The principal agencies that influence the quality of the pulp ground from any given wood are, speed of the stone, pressure used to press the wood against the stone, and the sharpening. The first two have considerable influence, and should be carefully looked after; but it is in the sharpening that the secret lies for the manufacture of a good uniform product. The influence of the speed is important, and the best practice is not to exceed a circumferential speed of 2,800 ft. per minute, which corresponds to about 200 revolutions per minute on an ordinary sized stone. It may go higher than this at intervals, but it is not good practice to grind at a much increased speed. When the stone is running too fast, apart from any danger from bursting, there is a tendency to heat the surface, which cracks when it is chilled by the water, and so destroys the cutting surface of the stone. This is only true when the speed is excessive, but even if running normally at a speed much exceeding 200 revolutions per minute, there is a tendency to gloss the stones, which is detrimental to its cutting capacity. With a slow speed, the wood is pressed completely into the stone, and thereby a longer fibre is produced.

With regard to the pressure used, there seems to be a great difference of opinion among pulp manufacturers, but heavier pressures are of more common use now than formerly. To increase the pressure is, in nearly all cases, to increase the output of the grinder, provided that the power is sufficient. In some of the Nova Scotian mills a pressure of about 15 pounds per square inch is used on the grinding surface. This seems to be an average, though for special products it may be as high as 17 pounds per square inch of the cutting area. It is seldom allowed to drop below 13 pounds in any case.

The question of sharpening is also one upon which many different opinions may be expressed; but no attempt will be made to specify which is correct, the writer simply giving his own experience. In sharpening for different products no rule can be laid down; each man has a way of his own which he thinks is the correct one. One fault that is often made is to use one jig too often. Thus, after one or two cuts are made, does not improve the surface, as the points on the jig run in the same holes. For "news" pulp the writer has found an 8 to the inch jig to work first-class, also a 6 to the inch is another good size. A good surface is made by making a light cut with a 4 to the inch jig over the other size, which breaks the holes and makes a more uniform surface. If the same jig is used too often it will make a pitted surface, which is not a good cutting one. Over-sharpening is a thing to be guarded against, as in that case the pulp is inclined to be short in the grain, or mealy, is hard to screen on account

* Paper read before the Engineering Society of the School of Practical Science, Toronto, and published by permission.

of the thickness of the fibres, and is difficult to remove from the wet machine, as the sheet will not hold together. When a stone has been over-sharpened by carelessness or otherwise, it may be restored by simply rubbing the surface with a brick. Some pulp makers prefer to sharpen this way, i.e., by over-sharpening at first and then reducing the cuts on the stone, by means of a brick, until the right degree is reached.

A very good point in the construction of a grinder is to have the stone accessible while in operation. Some machines have to be stopped and certain alterations made before the stone can be sharpened. While this is being attended to, the opportunity is generally taken to clean them out, and in this way the disadvantage of not being able to sharpen while running is in some manner counteracted. The sharpening jig is a cylinder of steel, about 3/4

of steel, one on each side of it. These flanges are turned true on their face and are threaded right and left hand on the shaft. By this method the torsional strain on the stone due to the grinding tends to make the flanges grip tighter. There are two principal methods of securing the stone to the shaft, one being an improvement on the other. The first method is to screw the flanges up as tight as possible, taking care that the stone is centered, and then to pour in cement around the shaft and flanges, through a small channel which had been previously cut in the stone. This method is in use in the majority of cases and seems to answer the purpose very well. The second method is very much like the first, but in addition to the cement and threaded flanges, the flanges are bolted together by 1-inch bolts, running through the stone from side to side, which are tightened up before the cement has be-

turned down to the required size, and made true on its face. It is best in turning off a stone to make the face slightly crowned or else to turn down near the edges more than at the centre. This prevents to some extent the spauling of the stone from the pressure of the wood. Great care must be taken that in turning down the stones no cracks are made in it, for, if any exist, the piece will very likely fly out when the pressure is applied. This, of course, will ruin the stone eventually, even if it is a small piece, as when one piece is broken out, others quickly follow. It is bad practice to run a stone after it has been spauled. In handling the stone when bringing it into the mill, it should, if possible, be slung from a carrier by ropes passing through its centre hole. As this is not provided for in many mills, the next best thing is to roll it on strong pulking, taking care that it is only bearing in the middle of the face and not near the sides. It should, in all cases, be eased by ropes and blocks, so as to have it at all times under control. If care is taken, a stone can be mounted without the edges becoming spauled more than will be completely removed by turning down and truing.

DESCRIPTION OF SCREENS.—When the pulp and water leave the grinder, it flows along the troughs placed underneath the floor of the grinder room to the large trough into which every grinder discharges. In this large trough are sprays, which supply sufficient water for the pulp to flow along it. At the end of this trough is placed a large tank covered over with iron plates, which are perforated

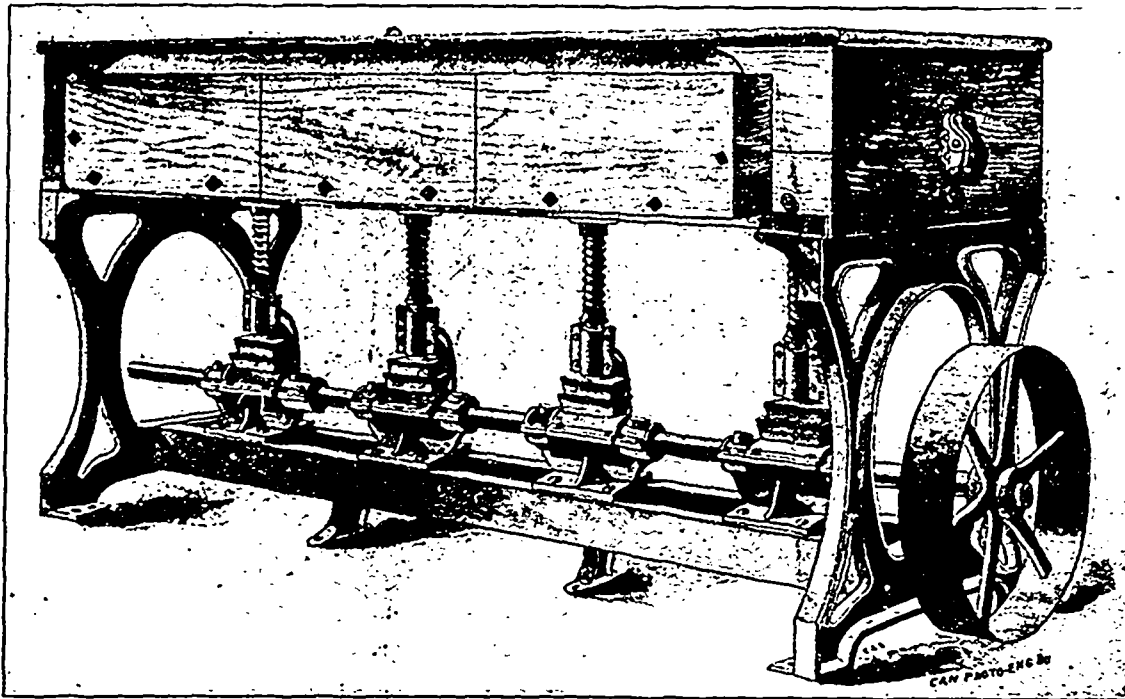


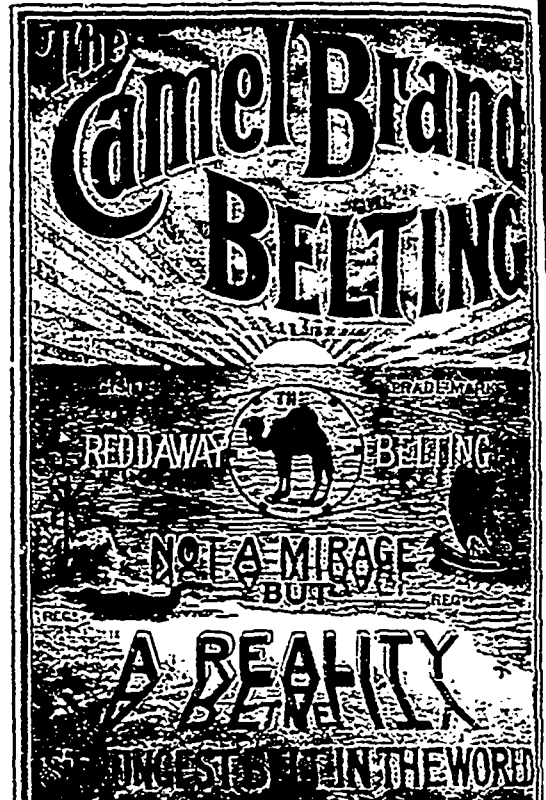
FIG. 10.—VIBRATING DIAPHRAGM PULP SCREEN (MANUFACTURED BY JENCKES MACHINE CO.)

inches long by 3 inches in diameter. It is cut on its surface by a heavy V thread, and also milled parallel to its axis by an equally heavy V cut. The resulting surface consists of a number of square, sharp-pointed pyramids. The jig is drilled throughout its length with a 1-inch drill, and mounted in a frame by a bolt passing loosely through this hole, so allowing it to revolve freely thereon. The frame also has on it a forged ring, which is made to engage a bolt on the grinder frame. This bolt passes across the face of the stone, and a few inches from it. The frame has also a suitable handle, by means of which it is guided by the workman. In operation, the bolt is passed through the ring and secured in the grinder frame. The workman can now girdle the jig across the face of the stone, against which it revolves. By bearing on the handle the pressure is applied, which causes the points of the jig to cut the face of the stone, making on it a rough pitted surface.

METHOD OF CHANGING AND MOUNTING STONES.—The stone is secured to the shaft by means of large flanges

come hard. When the cement has set perfectly hard the stone can be turned off and trued up. The addition of the bolts in the second method adds considerably to the strength and solidity of the whole machine as well as providing a safe-guard against bursting. For this purpose alone, it would almost be advisable to introduce them.

SETTING STONES.—When the stone is set in, it is very irregular on its surface, and must be turned off true before using. For this purpose an attachment is used which in its motions resembles the slide rest of a screw cutting lathe. It consists of a frame, which is placed on the grinder base, where it is bolted down firmly. On this frame there runs a carriage which is moved laterally across the face of the stone by means of a screw and hand wheel. Mounted on this carriage is a similar one, which moves at right angles to the surface of the stone, and is actuated also by a similar screw and hand wheel. On this top carriage is fitted a jig, similar to that used in sharpening, though generally a dull one is selected for turning off a stone. With this machine a stone can be



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with holes about 1/4-inch in diameter. The pulp and water falls on this screen, and flows through to the tank underneath, while all large splinters, chips, etc., are collected on the perforated plates. The stuff pump draws the pulp from this tank and discharges it in the large trough in the wet press room. The screen of plates prevents any large pieces from entering the stuff pump, which would cause trouble if allowed. The trough into which the stuff pump discharges is made of 2 1/2 inch pine planks, its size depending on the capacity of the mill. A 15 ton mill would require one about 20 in. wide by 24 in. deep. This trough runs the whole length of the wet machine room and is tapped, at intervals, for each screen. Each outlet is provided with a trap gate, or if the outlets are wrought iron pipes, a valve is used. It is also necessary to provide the trough with an overflow connected to a pipe running back to the tank in the grinder room. This will be found extremely useful in case of a stoppage in the wet press room, if the stuff pump is not driven from the same water wheel as the wet machines. From the large trough the pulp is led to the vibrating diaphragm screens, a cut of which is shown in Fig. 10. This type of

screen is in general use in America, and has been found very satisfactory. The machine is manufactured by the Jenckes Machine Co., of Sherbrooke, Que. These screens are built to contain ten or twelve plates as desired, the usual size of the plates being 12x36 inches or 12x40 inches. The cradle, or frame containing the screen plates, is hinged to the water box, and when raised, permits the cleaning or examination of the plates. The water box is built with a partition in the centre, forming two compartments, each of which is provided with a diaphragm, supported on two vertical spindles passing through the guides, shown in the cut, and carrying the knockers, or cam shoes, at their lower ends. The usual flexible connection between the diaphragm and the sides is affected by india rubber. The stock box is bolted in front of the water box and is provided with a brass valve for regulating the supply of stock. The side frames are of cast iron, connected by an angle iron distance piece, which carries the bearings for the cam shaft and which is also provided with stands underneath, thereby considerably reducing vibration. The bearings for the cam shaft are babbitted and are placed on either side of

each cam. These cams are made to give from one to four throws per revolution according to the speed of the cam shaft. The arrangement of the cams with relation to the diaphragms is such as to insure a constant strain on the driving belt. Springs are placed on the vertical rods, which keep the knocker always in contact with the cam, thereby avoiding vibration and noise. The usual speed of the screen is about 350 to 400 vibrations of the diaphragms per minute.

The screen plates are cut in fine slits. The size of these slits will vary according to the stock to be screened. For fine stock the cuts will be from .012 inch to .014 inch, though larger sizes are more usual. The capacity of these screens varies with the speed. At a speed of 600 R. P. M. they should screen 5 tons of well ground stock per 24 hours. In operation the upward movement of the diaphragm forces air and water up through the cuts in the plates, thereby cleaning them. On drawing down again, the pulp and water are sucked through the slits, and that which will not pass through remains on the screen plates. Sufficient water is necessary to keep the pulp in suspension.

PULP NOTES.

Several English capitalists were at St. Stephen, N.B., last month looking over the available sites for a pulp mill. Options on the water powers of Sprague's Falls and Grand Falls have been secured for the syndicate by Mr. David Maxwell, C.E.

Mr. Chas. Rurrill, of Weymouth, N.S., recently returned from Great Britain, where he endeavored to interest British capital in the pulp industry in Nova Scotia. He expects that arrangements will be completed at an early date for the building of another pulp mill on the Sissiboo river.

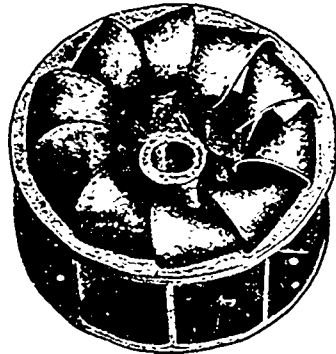
Mr. W. W. Fisher, a pulp mill expert of New York, with Mr. Nailor, have gone to England for the purpose of promoting a company to engage in the manufacture of pulp at Parrsboro, N.S. Mr. Fisher has recommended the construction of three 25-ton pulp mills, with a paper mill in connection.

At a meeting of the shareholders of the Cushing Sulphite Fibre Co., held in St. John, N.B., recently, Capt. Edward Partington, of Manchester, Eng., was elected president; Joseph Allison, vice-president; J. S. Gregory, secretary-treasurer, and Geo. S. Cushing, managing director. It was stated that Capt. Partington had agreed to take two-thirds of the stock of the company, and that plans for the pulp mill were being prepared under his supervision. The work will be proceeded with during the coming summer.

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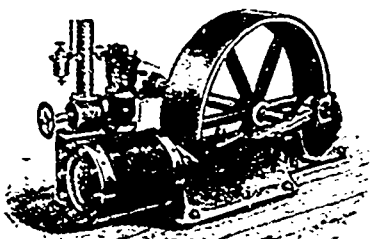
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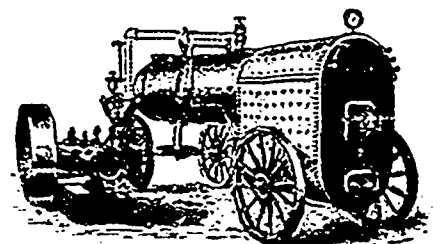
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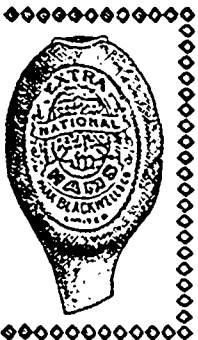
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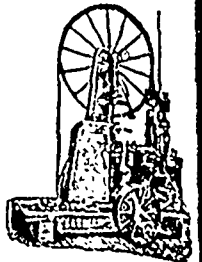


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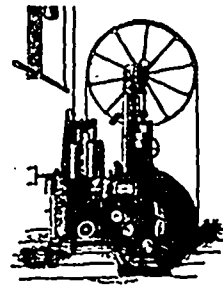
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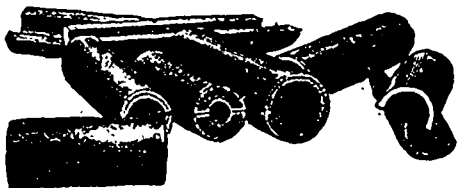
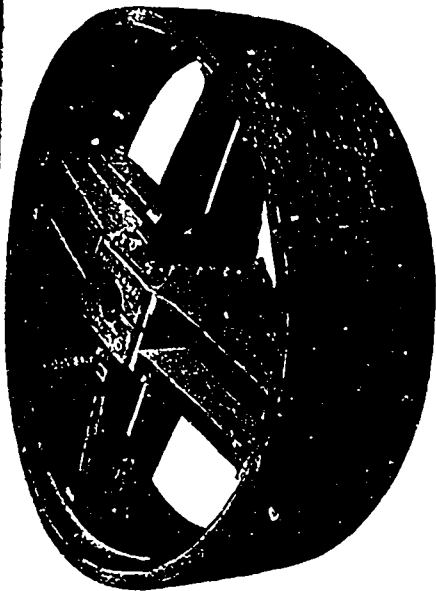
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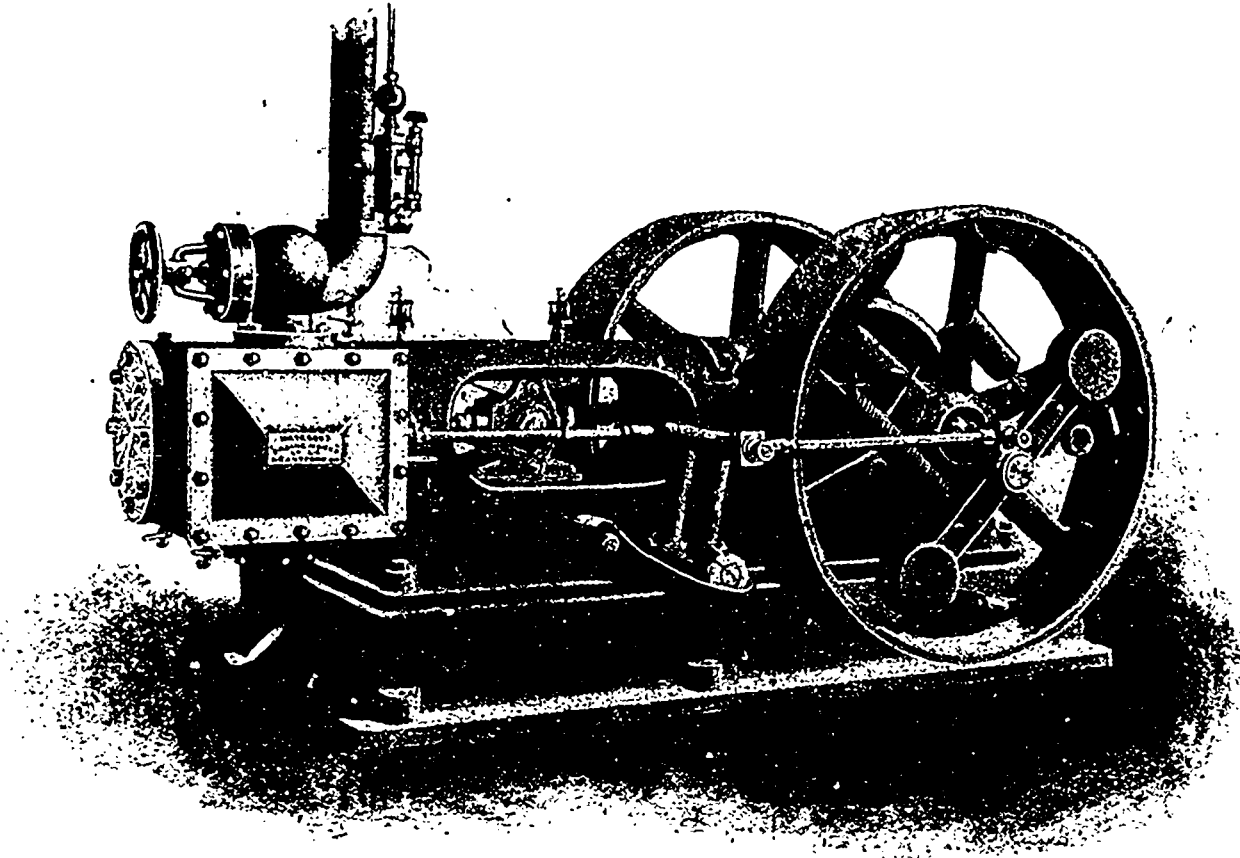
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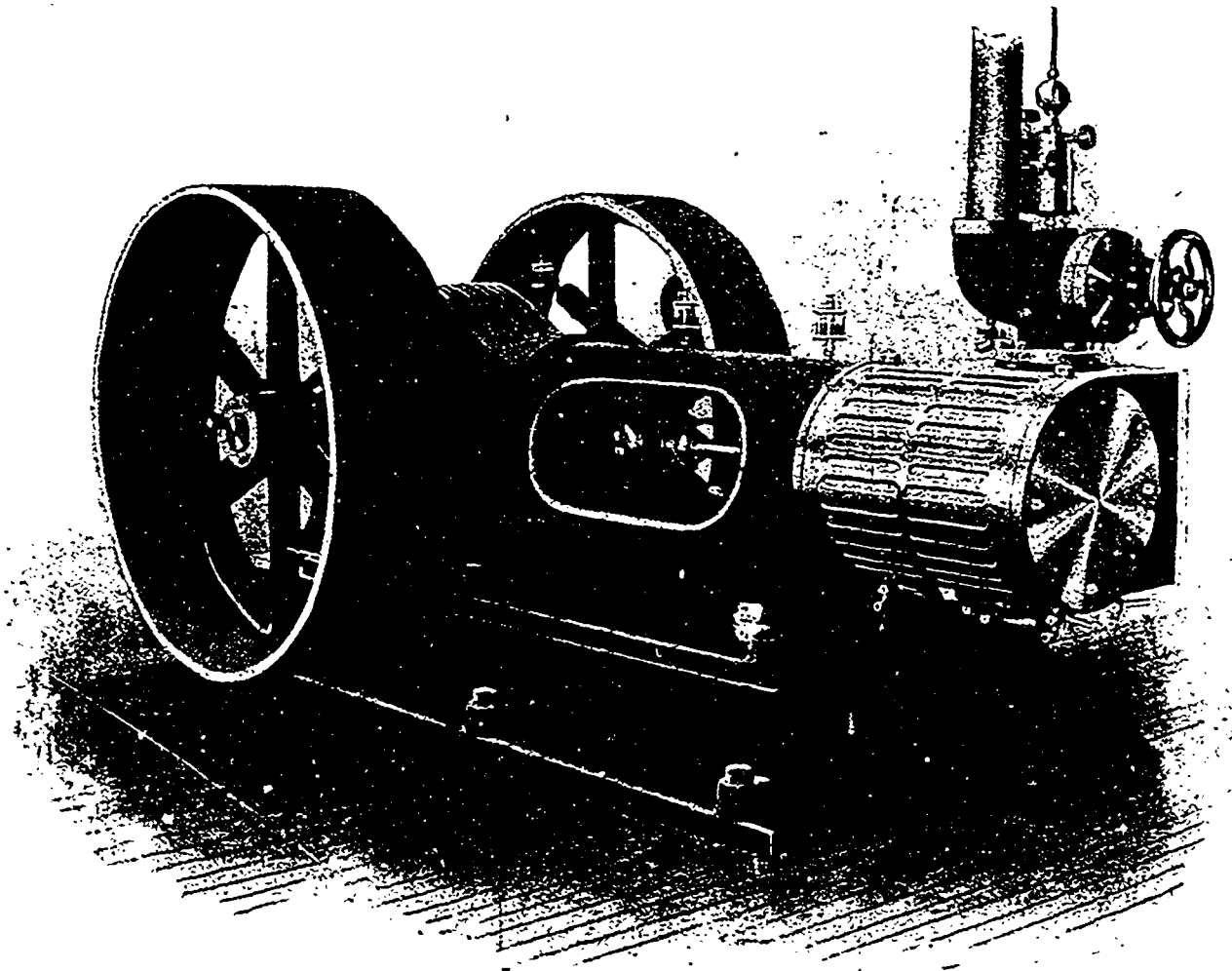
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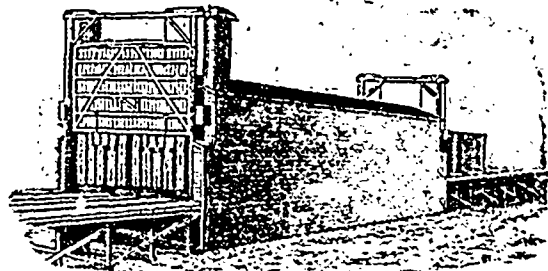
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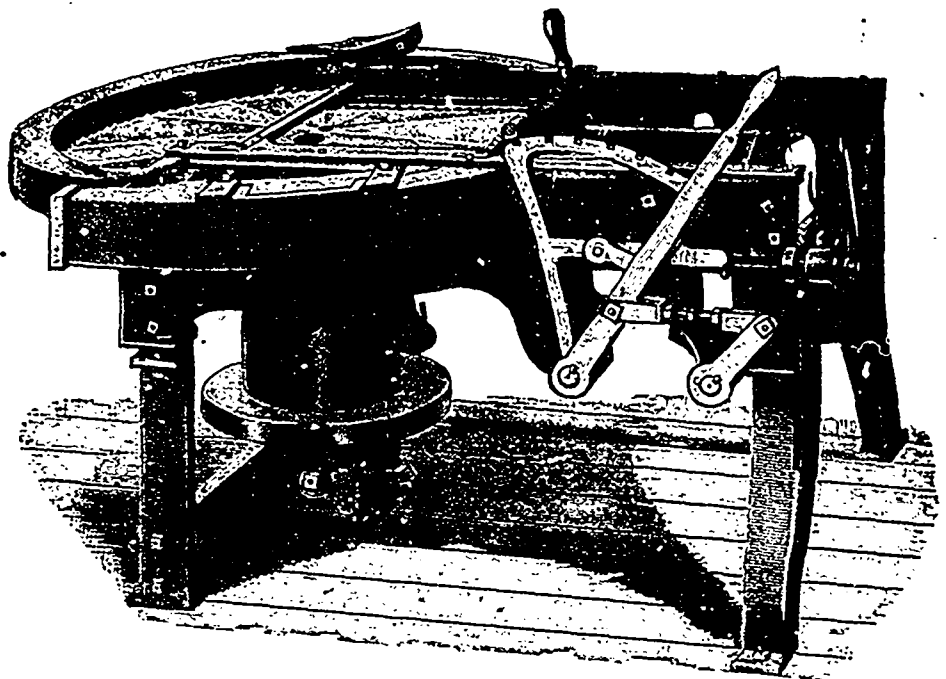
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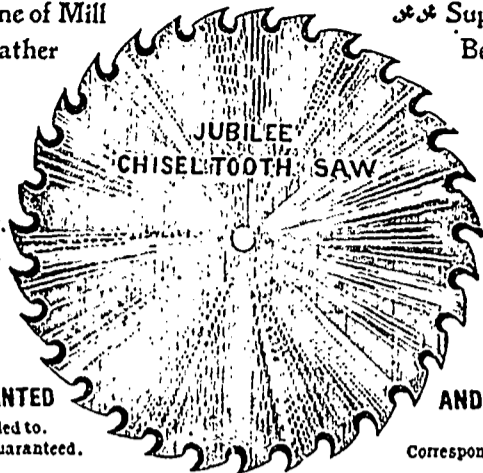
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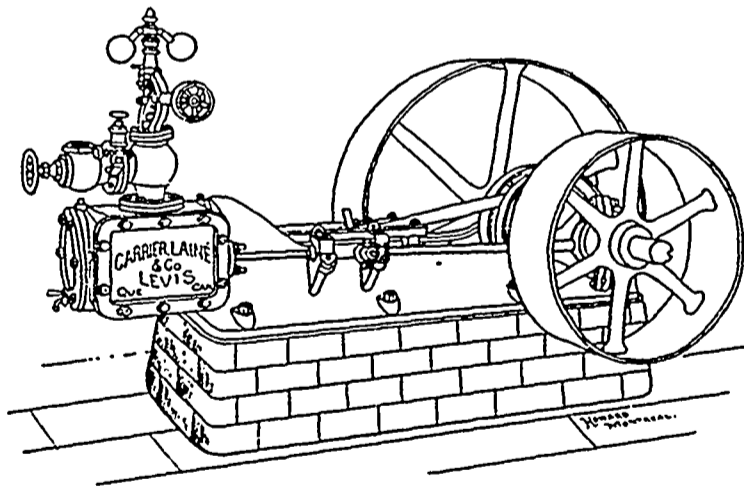
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