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THE CANADA LUMBERMAN

Wood-Workers', Manufacturers' and Millers' Gazette

VOLUME XXIII. NUMBER 8. | TORONTO, CANADA, AUGUST, 1903 | TERMS, $1.00 PER YEAR. Single Copies, 10 Cents.

R. H. SMITH CO., LIMITED

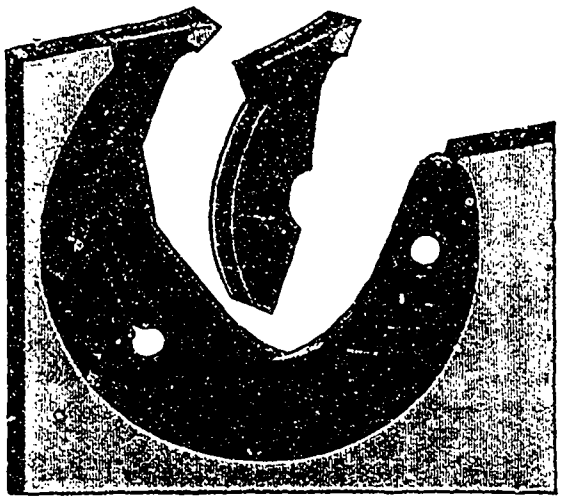
St. Catharines, Ont.

We are the Sole Manufacturers of Saws under the

Simond's Process

in the Dominion of Canada.

There is no process its equal for tempering circular saws. Other makers recognize this fact, as some of them, in order to sell their goods, claim to have the same process. **All such Claims are FALSE,** as the patentee in the U. S. and ourselves are the only firms in the world who use it.



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Notice the improved shank. We call particular attention to the swell which strengthens it at the weakest part and which gives it more wear than the old style.

Shanks made in usual gauges and to fit your saws perfectly.

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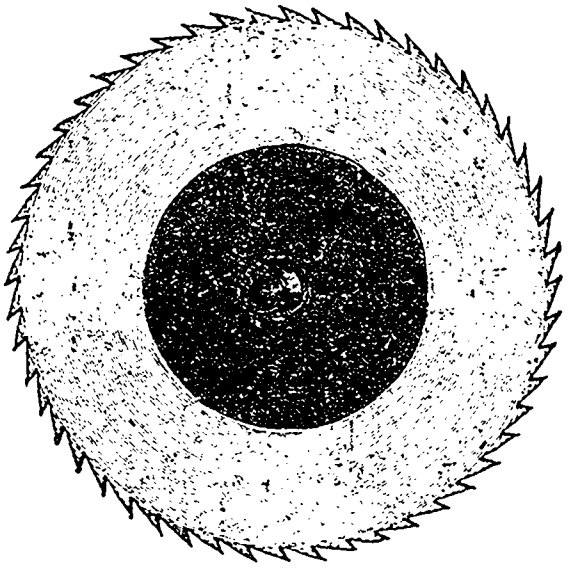

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The Simond's temper and style of tooth make the "Leader" the fastest and easiest cutting saw manufactured.

Write for prices.

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NEW PROCESS OF UTILIZING SAW MILL REFUSE.

There is a new thing under the sun. It is the making of alcohol from wood.

We fancy that many of our readers will protest and say that there are scores of plants in America making alcohol from wood. But they would be mistaken. The plants to which they refer are making wood alcohol, which is not alcohol at all. It simply resembles alcohol in color, slightly in odor, and in the fact that it will burn, though with no such heat as results from the combustion of genuine alcohol. A better and more descriptive name is "wood spirits," which is used in France. Scientifically it is know as methyl alcohol, while real alcohol made by the fermentation of sugar is ethyl alcohol. Without attempting to be too technical, the chemical formulæ of these two commercial products may be of value

Ethyl or "grain" alcohol is C_2H_6O. This maens that a molecule of alcohol is made up of two atoms of carbon, six of hydrogen and one of oxygen.

The formula for methyl or wood alcohol is CH_4O. That is, it has one less atom of carbon and two less of hydrogen.

Grain alcohol is comparatively innocuous, while wood alcohol is a virulent poison. Cases are numerous where people have drunk wood alcohol because they supposed it to be alcohol, and have promptly died. Wood alcohol has a large place in the arts, but grain alcohol has all the virtues of wood alcohol and many other besides.

To make real alcohol out of wood is from a practical standpoint a new thing. It has long been a fact well known to chemists that theoretically it should be possible to make alcohol from wood, for wood contains cellulose, and cellulose can be converted into sugar, and from sugar by fermentation is made alcohol. For thirty or forty years chemists have been at work on this problem, but they have always failed to make alcohol except at a cost greater than the value of the product, even if the laboratory experiments were enlarged to a factory scale.

Various methods have been used to convert the cellulose of wood into sugar. The most successful employed sulphuric acid, but sulphuric acid is a liquid, and to remove it from or neutralize it in the sugar solution resulting from the treatment of cellulose would cost more than the sugar or alcohol that can be deduced from it is worth. Chemists have not despaired, however, and have kept steadily at their work of investigation and experimentation, but it remained for Alexander Classen, of Aachen, Germany, who is Professor of Chemistry of the Aachen Polytechnic School, a leading chemist of Europe and privy state councillor of the German Empire, to devise a means by which the cellulose of wood could be converted into sugar without leaving associated with it substances which make it nugatory in its value. What this discovery was will be told in brief further on.

UTILIZATION OF SAW MILL REFUSE.

The manufacturing lumberman is interested in this discovery because it presents to him a method for utilizing the refuse of his lumber manufacturing operations —a method which does not lie under the suspicion of being liable to over-production, as is the case with a good many of the other by-products of wood.

Most saw mills are located where the refuse has no market value. The best that can be done with it is to use it as fuel, and that it is so used is a matter of course. In some mills located where there is no market for refuse, the slabs are burned under the boilers, and sawdust, edgings, trimmings, etc., is the refuse. In most modern mills, however, automatic furnace feeders are used, in which case sawdust is the basis of the fuel, mixed with larger refuse to loosen it up. The amount of refuse varies greatly, but in any modern mill of large capacity it is probably in the neighborhood of twelve to fifteen per cent. of the actual contents of the log.

The utilization of this material at some profit shows double results. It not only makes a profit out of what otherwise is thrown away, but also gives returns on a cash investment. Sawdust and slabs cost something to bring to the mill in the log, in some instances this expense being an important part of the entire cost of a saw-mill's output. To the intelligent lumberman the possibility of saving something from this waste is attractive.

Here comes in "grain alcohol as a by-product of wood. There is no danger of over-doing the grain alcohol business provided only that a slight saving can be made in the cost of production.

WOOD VS. CORN.

The Classen process, it is claimed, makes at least fifty gallons proof alcohol from a long ton of dry sawdust. About four and a half gallons can be made from a bushel of corn. Reduced to gallons of alcohol, one proof gallon is made from about two-ninths of a bushel, or 12.4 pounds of corn. It can also be made, at no greater, and probably a little less expense for the process, from forty-five pounds of saw-dust.

Put it in another way. It takes 11.1 bushels of corn to produce the same amount of alcohol as can be obtained from a long ton (2,240 pounds) of dry sawdust.

The Classen process is owned in the United States by the Lignum Inversion Company, of Chicago, which is to be succeeded by the Classen Lignum Company, that will take over the rights of the former and increase its scope. The Lignum Inversion Company has had for about four months in almost constant operation an experimental plant in Highland Park, near Chicago.

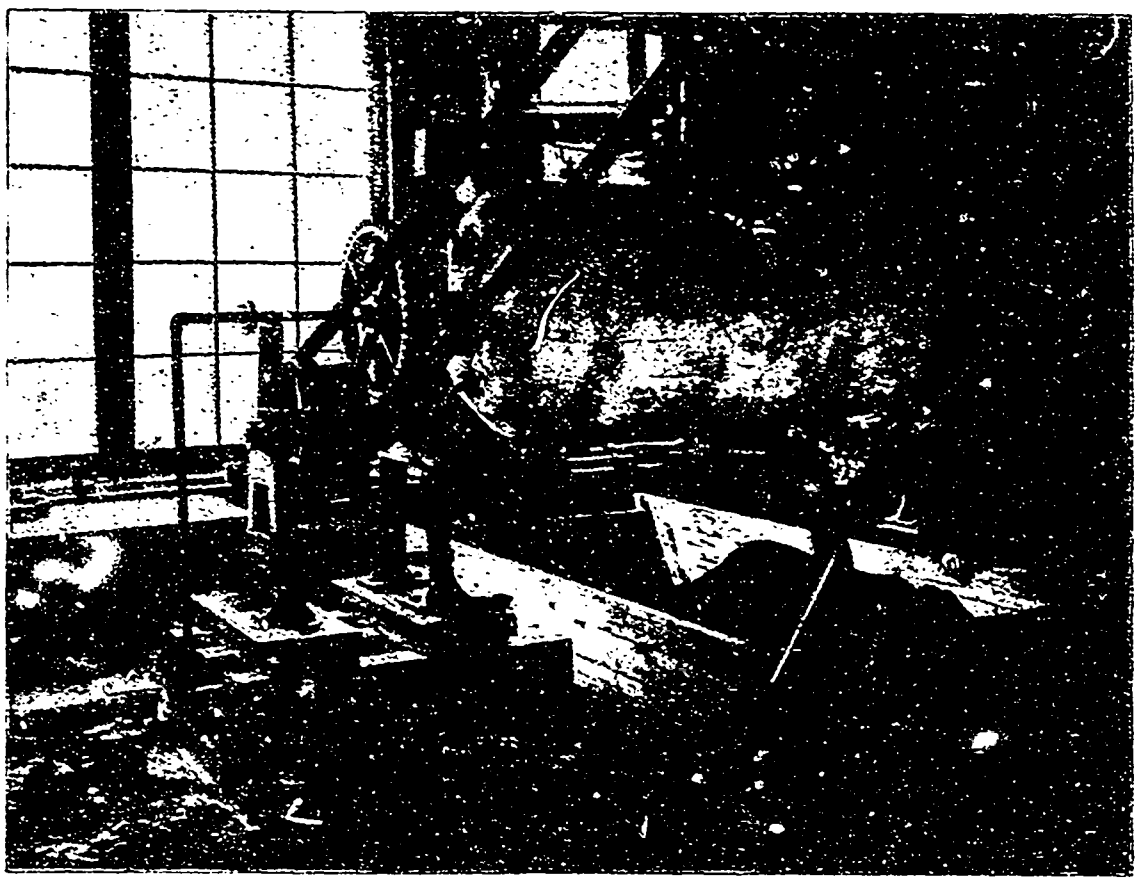


FIG. 1.—ROTARY DIGESTER FOR CONVERTING CELLULOSE OF SAWDUST INTO SUGAR.

DESCRIPTION OF THE PROCESS.

As stated at the beginning, the successful production of glucose or sugar from wood cellulose as a laboratory proposition had preferably been by treating it with sulphuric acid heated, but the sulphuric acid is a liquid and could not be removed from the resulting solution except at such great expense as to make the process commercially a failure. Professor Classen conceived the idea of using sulphurous instead of sulphuric acid. Sulphurous acid is a gas. The result is, that when given an opportunity under a moderate degree of heat, it releases or blows itself out of the wood, leaving the treated wood practically free from substances that will prevent fermentation of the contained sugar.

A plant for the manufacture of alcohol from sawdust consists first of the acid apparatus in which the necessary solution of the sulphurous acid gas in water is made, and where the gas when released from the boiler or digester is reabsorbed in the water and thus saved. A view is given of the apparatus used in the plant at Higland Park. Next is a revolving boiler or digester similar to that used in making chemical pulp. Next comes an exhausting battery, which is a series of tanks

through which water may be passed, washing out the sugar in the wood which is the result of treatment in the digester by the sulphurous acid gas. Next comes the neutralizing vat or vats in which various acids in the solution are removed or neutralized by the addition of carbonate of lime. Then comes the fermenting process and then the still room. The fermentation and distillation are precisely the same as in an ordinary distillery.

The process, as briefly described, is thoroughly to mix the sawdust with the sulphurous acid gas and water so that all parts of it are penetrated by the gas, thus converting a portion of the cellulose into sugar. This sugar, of which about 85 per cent. is fermentable, remains in the sawdust. This sawdust is then introduced into the exhaustion tanks where the water passes through them, the method being just like the making of drip coffee. The water simply passes through the sawdust, washing out the sugar.

The digester or boiler in which the wood is first treated is a revolving drum of iron, lined with lead to resist the action of the acids, then surrounded with a steam jacket by which it is heated. This drum is nearly filled with sawdust—in the experimental plant about 400 pounds being a charge. Into this is put about one-third of its weight of the acid solution. Then steam is turned into the jacket and the drum is set revolving slowly so as thoroughly to mix its contents. The steam in the outside jacket heats the sawdust and other contents of the digester to a temperature of about 295 degrees Fahrenheit. This heat drives the gas out of the water into the wood and converts the cellulose into sugar, the gas penetrating all the particles of wood and acting directly upon the cellulose. The pressure inside the digester, caused by the expansion of the gas, is 100 pounds or more to the square inch. This process takes three hours.

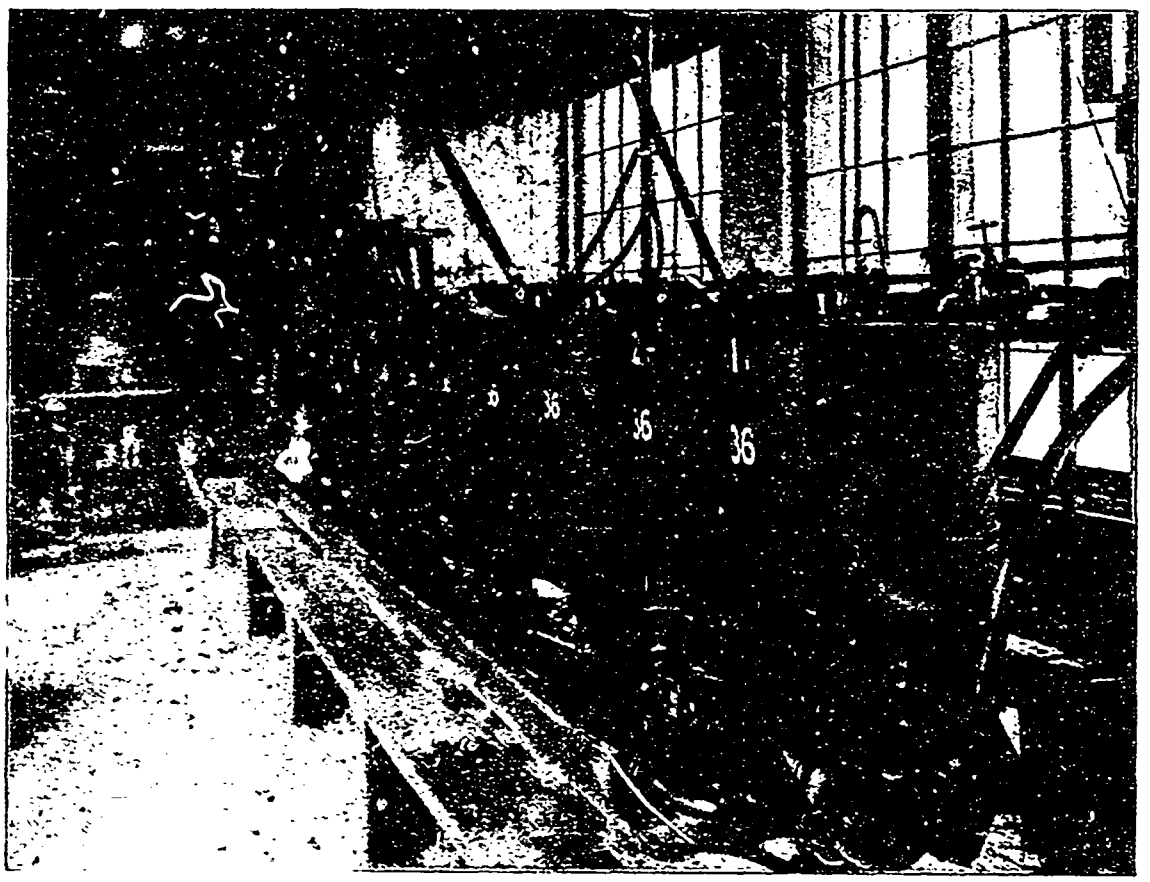


FIG. 2.—EXHAUSTION BATTERY FOR EXTRACTING SUGAR FROM SAWDUST.

The sulphurous acid gas and steam are then blown off from the cylinder into absorbing tanks in the acid room, thus saving 75 to 80 per cent. of the gas, which is then ready to be used again. The digester and the surrounding steam jacket having been blown off, the cover is removed and the digester emptied of its contents, which now resembles brown coffee more closely than anything else. This material contains the wood fibre and the converted cellulose, now sugar, and various other separated and partially separated products produced by the action of the acid and the heat upon the wood. The process is not carried as far as in pulp making, to which it is somewhat similar, the object being to carry it only far enough to convert as much as practicable of the cellulose into sugar and to stop short of the point where the sugar by reversion would be destroyed.

The exhaustion battery—so called in which the sugar is washed out of the sawdust, contains ten tubs or vats, in this case of 36-gallon contents each. Here it might be said that in the commercial plant it is proposed to treat a long ton of dry sawdust at one time and there may be as many digesters and sets of exhaustion batteries as is necessary to handle the available supply of sawdust or other finely divided wood.

These vats are so connected by pipes and valves with each other and with the pump that the contents of any one tub can be pumped into another. The principle of working is to bring the fresh sawdust in contact with the solution already containing sugar in order to make a solution as strong as possible, and on the other hand to treat the nearly exhausted sawdust with pure water in order to complete the washing out of sugar. This is a continuous process, that is to say, when the contents of a vat has been treated with ten washings it is emptied out and refilled with fresh sawdust. Before emptying its charge it receives fresh water, and after refilling it receives the strongest solution.

The result of this process is a sugar solution which contains 450 to 500 pounds of sugar from a long ton of dry sawdust. This sugar is of two sorts, one of which is pentose, non-fermentable, the other part, amounting to 70 to 80 per cent., being capable of alcoholic fermentation when treated with yeast.

This solution from the exhaustion battery is pumped into a receiving tank, where it is neutralized with carbonate of lime, which is necessary to prevent the acid from killing the yeast to be added for the purpose of fermentation.

From this neutralizing tank the solution is pumped into the fermenting vats and is now called "mash." Then yeast is added to the solution, which is held at the proper temperature, and in a very short time fermentation begins. When it is completed, the product passes to the still room, a view of which is given, which is equipped with still, condenser, etc., this part of the process being in no wise different from that ordinarily used in distilleries.

The result is about 50 gallons of proof alcohol or 25 gallons of absolute alcohol from a long ton of sawdust.

This plant was for three months under the oversight of J. H. Long, professor of chemistry in the medical school of Northwestern University, Chicago, and President of the American Chemical Association. This gentleman spent about one month in personal management of the plant, of which he was given complete charge, and the remainder of the three months it was under his control through an assistant. The report of Prof. Long was a strong recommendation of the process.

It should be said that something over 24 gallons of absolute alcohol have been secured from a ton of sawdust up to this date, but that improvement in the output has been so constant that it is believed that with the further development and improvement of the system probably 30 gallons and perhaps more can be secured; but the company is making no claims as yet of more than 25 gallons of absolute or 50 gallons of proof alcohol to the ton. This product is enough to secure the entire approval of both scientific and practical men who are familiar with the manufacture of grain alcohol and the marketing of the same, and who state that nothing more is necessary to insure profitableness under the process, provided, of course, sawdust can be bought cheaper than corn on the basis of the alcohol output from each.

LOCATION IN RELATION TO SAW MILL.

The ideal location of such a plant is alongside a saw mill of large capacity with a considerable life ahead of it guaranteed by timber supplies. This location should not be in a large city where there is a good market at present existing for mill refuse, though a Classen distillery could compete for the output of saw mill waste under ordinary market conditions. In a mill which uses the greater part of its sawdust product for fuel a change would have to be made in this particular. In such cases automatic furnace feeders are used and perhaps the hog would have to be brought into requisition to supply chips to take the place of the sawdust.

The cost of plant is not heavy considering the value of its output, and with such practical results from an experimental plant a properly designed equipped and built plant on a large scale should effect economies in labor expense and should increase the output per ton.

There is claimed to be absolutely no question as to the scientific practicability of this method of producing grain or ethyl alcohol from wood, and there is no question, furthermore, of its commercial practicability, as demonstrated by the plant already in operation.

VALUE AND USE OF THE TAILINGS.

A further consideration is as to what can be done with the exhaust sawdust and what its value is. In the various processes through which it is put it contracts in volume from 25 to 33 per cent., but, volume considered, its fuel value is apparently not changed. About one-fourth of the cellulose is removed and other properties taken out have no fuel value. Consequently, if the sawdust is still needed as a fuel it can, after treatment, be turned back to the mill and burned under the boilers as originally intended; but the residue remains unchanged and practically undiminished, the qualities which make it available for dry distillation.

The treatment of heat and acid has left it dead, inert, without apparent vitality or elasticity; consequently it can be pressed into briquettes without the use of an agglutinant or binder. A great deal has been heard lately of the manufacture of briquettes from sawdust, but invariably this process requires the use of resin, or tar, or something else, as a binder in order to hold them together. This is not necessary with sawdust after being treated with the Classen process.

These briquettes can be readily converted into a high grade of charcoal. If the process is carried on in retorts the by-products of the process can be preserved in the shape of wood alcohol, acetate of lime, wood tar, etc. The charcoal produced is of an unusually high character, both because of the purity of the material used and the uniform size of the briquettes, which make carbonization uniform.

This dry distillation of the tailings from the Classen plant is a distinct process, requiring a distinct equipment. Tests as to the manufacture of charcoal by the retort process referred to above show that the results are better than with wood ordinarily used.

SAW MILLS ADAPTED TO PROCESS.

It is apropos to explain to what class of mills the Classen wood distillation process is adapted. In the first place there should be a daily product, either of one mill or of several closely associated, mills—preferably one—of at least 20 tons of waste a day, although a plant could be adapted to a smaller product.

Second, it should be a mill cutting exclusively one kind of wood. This is because hard and soft woods require a different degree of heat in the digester or boiler, and where the wood waste is composed of hard and soft woods the returns are not as great as they are where they are worked separately.

The company advise us that the illustrations shown herewith were prepared by the American Lumberman.

DEATH OF LIEUTENANT WHELEN.

News of the tragic death of Lieutenant George Hume Whelen, son of Mr. Peter Whelen, of the Sheppard & Morse Lumber Company, Ottawa, which occurred on July 25th, brought the deepest sorrow to a wide circle of friends and acquaintances. Deceased had reached Quebec with a raft of timber for the Sheppard & Morse Company. The raft had just been snubbed to the dock as the tide changed. The current swung the raft around towards the wharf and as it closed in Mr. Whelen saw that the raft was closing in on the ferry boat, which was lying alongside the wharf. He took up a pike pole and placing it against the side of the steel hull of the boat stood on the edge of the raft and endeavored to keep the weight from crushing in the boat. His pike pole slipped and he fell headforemost into the water. He immediately came up, when one of the raftsmen caught his outstretched hand, but not in time to pull him out, and the raft closed on him, crushing his chest between the boat and the timber. Death was almost instantaneous.

Deceased was a lieutenant of the Forty-Third Duke of Cornwall's Own Rifles of Ottawa, and was very popular. He was nineteen years of age and a young man of much promise. He had decided to take up the lumber business and spent last winter in the shanties for the Sheppard & Morse Company, his object being to learn every branch of the business.

He was buried on July 27th with full military honors, his regiment being present in good strength and all of the corps of the Ottawa brigade being represented.

DOMINION EXHIBITION.

Although the dates set for the Dominion Exhibition at Toronto are Aug. 27 to Sept. 12, the formal opening will not take place until Saturday, Aug. 29, when, under the rules, everything will have to be in place and ready for inspection by the public from 9 a. m. to 10 p. m. All the special features, including Kiralfy's great spectacle "A Carnival in Venice," will be given that day. The Exhibition will be considered officially closed at 10 p. m. on Saturday, the 12th of September, after which exhibitors must remove all their property from the grounds and buildings. No removals will under any circumstances be allowed before Monday morning, September 14th, except in the case of live stock, which may be removed after the parade of prize winners at 2 p. m. on Saturday, 12t September, and agricultural and horticultural products, which may be removed after 10 p. m. and 4 p. m. respectively on Saturday, 12th September, and poultry at 4 p. m. Friday, September 11th.

—The Howe Woood-Working Company, Limited have been incorporated at Fredericton, N. B.

—Mr. William K. Grafferty, of the Montreal Lumber Company, has been proposed for membership in the Montreal Board of Trade.

SHAVINGS.

A redwood tree recently cut in California made 150,000 feet of lumber. Operators in the older sections of the country can hardly comprehend that one tree would furnish a day's work for a good sized sawmill.

The summer meeting of the American Forestry Association will be held August 25 and 26 in Minneapolis, upon the invitation of the governor of Minnesota and the city of Minneapolis.

After a hearing extending over a number of days and comparison of Minnesota coal and lumber rates with those charged by the railroads in adjacent states, the Minnesota State Railroad & Warehouse Commission has ordered a reduction of ten per cent. in coal rates and fifteen per cent in lumber rates on the roads within the boundaries within the state.

Owners of mills are interested in experiments that have been made with graphite as a preventative of scale in boilers. It is said that a small quantity of graphite mixed with [illegible] scale formation, and that if scale is already in the boiler, the graphite will penetrate the old scale and decompose it, causing it to drop to the bottom.

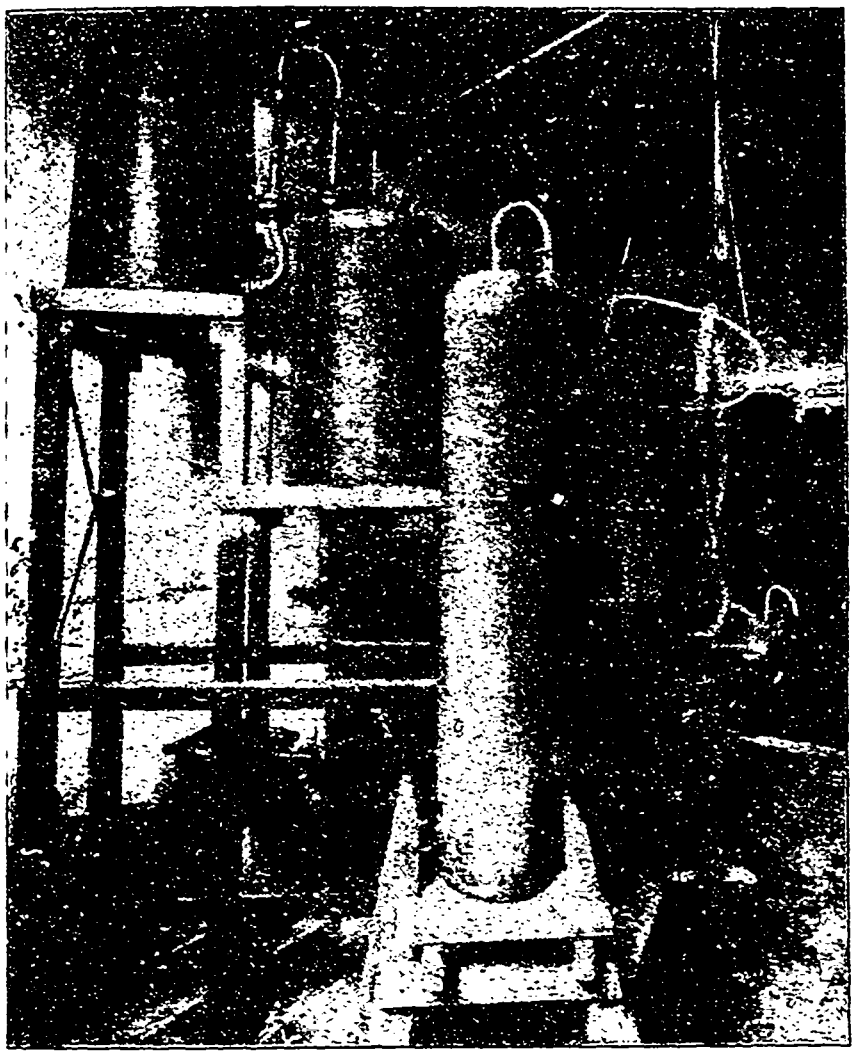


FIG. 3.—ACID ROOM AND APPARATUS.

FIG. 4.—STILL ROOM AND APPARATUS.

TRADE NOTES.

A. J. Young, of Cache Bay, Ont., has purchased the wholesale stock of lumbermen's supplies, etc., of George Gordon & Company at Haileybury, Ont.

The J. S. Henderson Company, of Parrsboro, N. S., have just patented a new style of larrigan which is calculated to revolutionize this kind of foot wear. The company have this season manufactured upwards of 12,000 complete larrigans.

The Syracuse Smelting Works, Montreal, have lately received an order for 20 tons of high grade babbitt metal from the largest manufacturer in Canada. They are also turning out for exportation very large orders of babbitt metal, linotype and stereotype metal. We understand they employ about 60 men, who are kept busy day and night turning out rush orders.

LUMRERMEN'S CONCATENATED ORDER OF HOO-HOO.

The first organization of this association in Ontario was held at Toronto, July 7th. Much of the success of this forward movement is due to the efforts of Mr. Harlan P. Hubbard, the Vice-gerent of the Eastern District of Canada, and to Mr. Walter C. Laidlaw, of Toronto, both of whom were initiated into the mysteries of Hoo-Hoo on the other side of the line.

The organization of Hoo-Hoo is unique in the fact that it is strictly a trade organization and limits membership to those engaged in the lumber business or those directly interested in said business within prescribed limits. The fact should be remembered that all lumbermen are not Hoo-Hoo, but that all Hoo-Hoo are lumbermen or identified with the trade in some way.

The only general meeting of Hoo-Hoo is held once a year on the ninth day of the ninth month in place selected. The name is Hoo-Hoo, not Hoo-Hoos. The singular is plural and the plural very singular.

A number of carefully groomed "black cats" came over from Buffalo and initiated the Ca-

MR. H. P. HUBBARD, TORONTO,
Hoo-Hoo Vice-Gerent for Eastern Canada.

nucks into the mysteries of the onion bed. The offices were filled as follows :—

Snark of the Universe - C. H. Stanton
Senior Hoo-[illegible] - J. B. Wall
Junior Hoo-[illegible] - C. M. Treat
Bojum - - - Jno. Feist.
Scrivenoter - - - W. C. Laidlaw
Jabberwock - - Orson E. Yeager
Custocatian - - Fred. J. Blummenstein
Arcanoper - - William Hogg
Gurdon - - - - Jno. McLeod
Vice-gerent Snark Hubbard, assisting as required.

Precisely at nine minutes past nine a string of nine blind kittens were led, amidst much caterwauling, through the wonders of Hoo-Hoo land, after which the following supper was enjoyed :—

MENU.

Soup
China Chicken—Inserted Teeth
Fish
"Made in Canada"
Bread — Potatoes
Turned and Bored — A la Beveled Siding
Beef
1 by 4, D & S & M, Buffalo Inspected
Potatoes — 1903 Cut — Peas
Ham — Salad — Tongue
Slabs — Edgings — Sawdust
Cake and Cream
Clear Shorts — Re-sawed — Dressed
Coffee
Cigars — C Select

The following well-known lumbermen were initiated :—

Ashley Richard Riches - - -	Toronto
Hugh "Slab-slasher" Monroe - -	Toronto
Andrew Kenneth McIntosh - -	Toronto
Fred. Burt Hahn - - - - -	Toronto
Wm. John Hetherington - -	Toronto
Wm. Daniel Lummis - - - -	Toronto
Wm. John McBeth - - - -	Toronto
Joseph "Alderman" Oliver - -	Toronto
Douglas L. White - - - -	Midland
William Perkins Bull - - - -	Hamilton
Geo. Minto Nickels - - - -	Toronto
Richard "Pad" Locke - - - -	Toronto

Another concatenation will be held on the 7th of August in Toronto. All who are desir-

MR. W. C. LAIDLAW, TORONTO,
An Enthusiastic Hoo-Hoo, and an Active Spirit in the Toronto Concatenation.

ous of attending should send their names to H. P. Hubbard, 30 Front St. E., Toronto, Ont. Dues are 99 cts. a year. Those who have but one Christian name will be given another. The order is limited to 9999 members and they are very close to that mark now.

J. R. H.

THE LUMBER DEMAND IN FRANCE.

In a report to the Dominion Government Mr. A. Poindron, Commissioner at Paris, France, states that a large development of the lumber and timber exports to France could be obtained if Canadian exporters were to appoint direct agents in France. In fact the most important of them are dealing with France through the firms in England that they have entrusted with their general agency for United Kingdom and the continent. In spite of the reason of which I am aware that Canadian exporters could state, in favour of their present organization as to exports of lumber and timber to Europe, I am afraid the Canadian export trade of lumber to continental Europe in general, and specially to France, will develop at a slow rate until they try direct connections with agents in continental European countries.

As regards France, the agents of Canadian exporters in the United Kingdom have to give to their own representatives in France a part of their commission, and they feel inclined to work preferentially the English market at full rates of commission.

On the other hand their representatives in France give also their preferences to business done at full rates of commission, and as they are generally entrusted with direct agencies of exporters from other foreign countries, like Baltic countries, United States and others, and as they are often born in such foreign countries, they carry the Canadian lumber import business in France with less care and energy than Canadian or French direct agents would do.

As to square timber, oak, birch, maple, elm, ash, are in very large demand in France. Oak planks and flooring, maple flooring, pine deals, staves and blocks could get a largely increased trade. As to spruce deals, in Paris, Rouen, Le Havre, Alger, Oran, Marseilles, the size 3-in. x 9-in. took the largest sale and, with an approximate proportion of 3-in. x 8-in. and 3-in. x 7-in specified by every order. Quality—1st, 2nd and 3rd Quebec—Average, 2nd Quebec. Average length 14 feet.

In Bordeaux and Nantes, the demand is chiefly for 3-in. x 7-in. and an approximate proportion specified by the orders of 3-in. x 9-in. and 3-in. x 8-in. Quality—1st, 2nd and 3rd Miramichi and Quebec—Average 2nd Miramichi and Quebec. Average length 14 feet to 15 feet. Important deal end orders 6 feet to 9 feet would be also available in all of the places referred to.

PRACTICAL SAW POINTERS.

An extreme amount of swaging increases the tensile strain upon the saw. The proper amount of swaging varies, according to the timber being sawed, hardwoods requiring the least set, and soft or fibrous woods requiring more. A clearance of 4 to 5 gauges is usually considered sufficient by most filers, and few make a greater distinction than 1 gauge of set as between hard or soft woods. It is a well-known fact that many run their saws without distinction upon all classes of stock that approach the saw, and there are mills that cut a dozen different kinds of woods almost daily with relatively equal success. The final fitting of circular saws differs greatly in different parts of the country, according to the timber being cut and the class of the logs. Seven-gauge circulars are most commonly used, running on from ¼-inch to 5-32 inch set. Some of the southern and Pacific coast mills run 5 or 6-gauge saws, and in the latter section run a set of from 3/8-inch to ½-inch. The saws in use for hardwoods vary from 8 to 11-gauge and are run variously on from 3-16 to ¼-inch set. Gang saws in common use vary from 11 to 16-gauge ; log band saws from 14 to 16-gauge ; rift gang saws from 15 to 18-gauge ; band resaws from 18 to 26-gauge.—Packages.

VIEWS AND INTERVIEWS

One who has thoroughly exploited the Newfoundland timber and been actively engaged in its manufacture is authority for the statement that the pine and spruce of that country is faulty and does not compare with the timber of Canada—claims to the contrary notwithstanding. His opinion would seem to be substantiated by the withdrawal from that field of a large Scotch firm which had invested heavily in limits and intended carrying on operations on an extensive scale. Had their short experience been of a satisfactory character, they would probably not have disposed of the property even if the turnover represented a profit, which is doubtful.

* * *

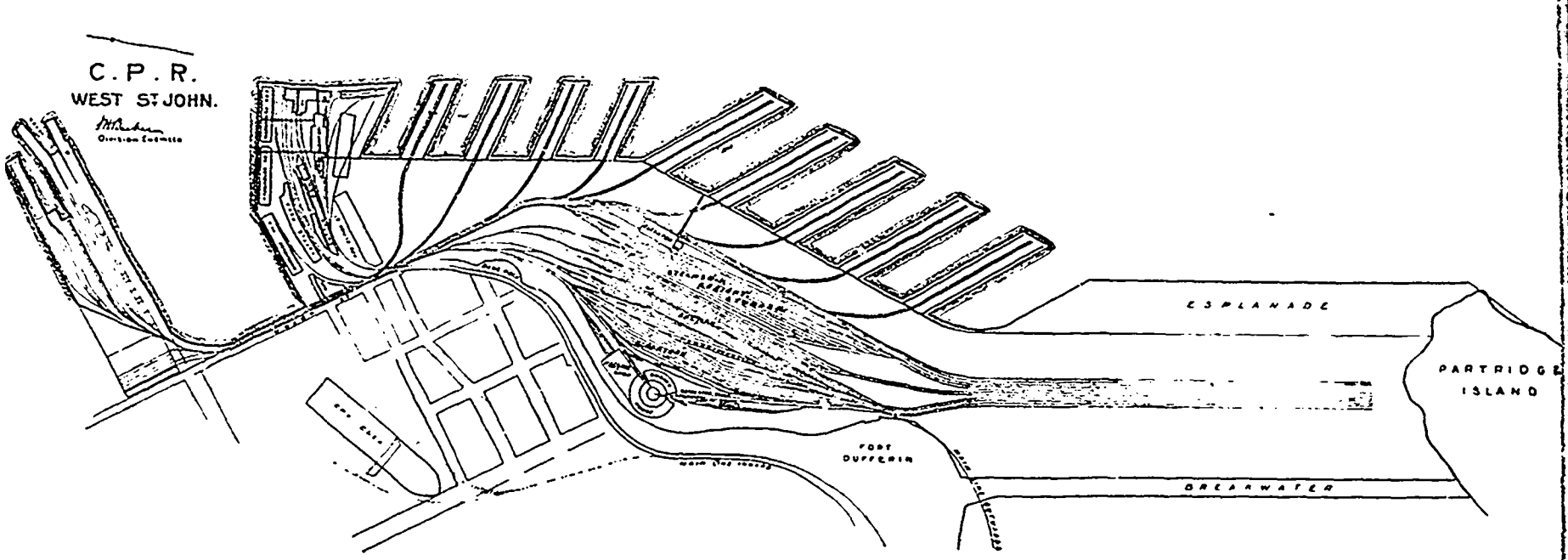
A gentleman well informed in Pacific Coast lumber matters was asked if he did not think much of the trouble with the shingle trade was due to the fact that the shingle weavers were employed by piece work rather than by the day, and replied: "The question you ask regarding the method of paying for manufacturing and packing shingles is a question which has come up many times in association meetings on the coast. That cannot be responsible for all the trouble. Many of the mills now pay all their shingle weavers by the day, but there seems to be something so contrary in the nature of this class of help that they will do a lot of mean, aggravating things which are of no benefit to themselves but a source of much loss and annoyance to their employers." Continuing, he said: "By the way, did you ever hear how these shingle sawyers, particularly the packers, came to be called weavers? In placing the shingles in the racks a good many of them get into the habit of swinging their bodies back and forth as they work. In fact it resembles nothing so much as working at a weaving machine."

* * *

Some information concerning lumber matters in West Australia was imparted by Mr. J. C. Port, a leading lumberman of Perth, the capital of that colony, who paid a visit to Toronto last month. Mr. Port was on pleasure bent, although aiming at the same time to pick up some ideas regarding saw-milling in Canada. The population of the Australian Commonwealth is about 4,000,000, that of West Australia being 240,000. Within twelve years the population of West Australia has increased 200,000. Mr. Port has for some years operated a large saw-mill in the vicinity of Perth. The timber of West Australia consists largely of Jarrah and Karri, both hardwoods of a very tough nature. The area of Jarrah timber in West Australia is about 8,000,000 acres, and that of Karri 1,200,000 acres. The method of logging differs from that of Canada, in so far that there are no streams by which to float the timber to the mills. Horses and railways furnish the means of transport. The wagon used for hauling is a two-wheeled "whim", the wheels being 9 feet in diameter. It is not considered profitable to haul the logs by means of horses for a distance of more than one mile. Beyond that distance railways are constructed into the limits. Operations are conducted the year round, there being no snow, but in the winter time the ground becomes boggy and hauling is more expensive than in the summer. The Karri tree grows to an average diameter of about 6 feet and the Jarrah to 4 feet. The writer was shown a picture of a Karri tree 245 feet high and 40 feet in circumference. The waste of timber is much greater than in this country, owing to the fact that the heart of the tree is defective and useless. Lumbermen figure that only 50 per cent. of the timber is merchantable. Notwithstanding this loss, the production per acre must be very large, as Mr. Port operated a large mill for five years without building a railway into the timber. The haul, however, was much longer than the average and towards the last became very expensive. West Australia is now exporting large quantities of railway sleepers and bridge and jetty timber to South Africa, the trade with that country having greatly increased since the war. Paving wood is exported to England. The Jarrah timber is very durable. It has been known to last for forty years in wharf piling. One of the last orders executed by Mr. Port before leaving on his tour was some 6,000 loads of sleepers for the Ceylon Government. Three steamers carried the timber, the freight rate being 30 shillings a load of 50 cubic feet. Mr. Port considers that Canada could do a large trade with Australia in doors, sashes and like goods, as there is no timber there which answers the purpose of our pine and spruce. The Oregon pine is well spoken of and can be laid down there at a lower cost than the native timber. It is used in buildings for joists, etc.

HARBOR IMPROVEMENTS AT ST. JOHN, N.B.

The city of St. John, N. B., has expended over three-quarters of a million dollars on improvements to its harbor, and is about to undertake improvements of a still more extensive character. The proposed plan, shown by the accompanying illustration, was first conceived by Superintendent James Osborne, of the Canadian Pacific Railway, and submitted by him to the Board of Trade and City Council. It provides berths for thirty additional steamers. The new work will start at the present C.P.R. wharf on the harbor front, Sand Point, and run down the harbor to the Beacon Light, giving the first five slips shown eleven additional steamer berths. These slips would be 670 feet long by 250 feet wide.



PLAN SHOWING PROPOSED HARBOR IMPROVEMENTS AT ST. JOHN, N. B.

Then from the Beacon towards Fort Dufferin would be a line of five double piers, giving accommodation for 18 or 20 more steamers. These slips would be 1200 feet long by 300 feet wide. The curved lines represent railway tracks which would serve each berth, and in the immense yard which they would traverse there would be room for more than 50 miles of tracks.

Extending from Fort Dufferin to Partridge Island along the line of the present breakwater, would be an esplanade, perhaps 1,000 feet wide, with roadway and street car lines. The lines marked "proposed boulevard" and "breakwater" show only the beginning of the proposed esplanade; it would extend to the island, act as a breakwater, and also, on the shore side, give room for more steamer berths.

It is expected that the Dominion Government will be induced to grant financial assistance towards the contemplated improvements.

For the accompanying cut we are indebted to Hardware and Metal.

THE
Canada Lumberman

MONTHLY AND WEEKLY EDITIONS

PUBLISHED BY

The C. H. Mortimer Publishing Company of Toronto, Limited,

CONFEDERATION LIFE BUILDING, TORONTO.

BRANCH OFFICES:
IMPERIAL BUILDING, MONTREAL.
22 GREAT ST. HELENS, LONDON, E. C.

The LUMBERMAN Weekly Edition is published every Wednesday, and the Monthly Edition on the 1st day of every month.

TERMS OF SUBSCRIPTION:

One Copy, Weekly and Monthly, One Year, in advance . $ 1.00
One Copy, Weekly and Monthly, Six Months, in advance.. .50
Foreign Subscription, $2.00 a Year.

ADVERTISING RATES ON APPLICATION.

THE CANADA LUMBERMAN is published in the interests of the lumber, wood-working and allied industries, being the only representative in Canada of these important interests. It aims at giving full and timely information on all subjects touching these interests, and invites free discussion by its readers.

Especial pains are taken to secure for publication in the WEEKLY LUMBERMAN the latest and most trustworthy market quotations throughout the world, so as to afford to the trade at home and abroad information on which it can rely in its operations. 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.

Advertisers will receive careful attention and liberal treatment. For manufacturing and supply firms wishing to bring their goods to the attention of owners and operators of saw and planing mills, wood-working factories, pulp mills, etc., are CANADA LUMBERMAN is undoubtedly the cheapest and most profitable advertising medium. Special attention is directed to "WANTED" and "FOR SALE" advertisements, which the inserted in a conspicuous position on front page of the Weekly Edition.

VALUE OF HARDWOOD TIMBER.

While coniferous woods comprise the bulk of the forest wealth of Canada, there is a large quantity of hardwood timber which represents an asset of no small value. The tendency in the past has been to overlook the importance of the hardwoods, but the time has come when the question of preserving this class of forest must receive attention.

Notwithstanding that iron and steel have replaced wood in the construction of buildings and for many other purposes, the demand for hardwood lumber is gradually increasing, and to-day the factories using such as their raw material are finding difficulty in obtaining an adequate supply. The furniture factories are now in the happy position of being compelled to take their travelling salesmen off the road on account of having more orders than can be filled. The consumption of hardwood lumber by this industry alone is very heavy. With the consequent increased price of lumber has come an appreciation in the value of stumpage.

The action of certain railroads in the Northern States may have an important bearing upon the hardwood demand. It appears that many of these roads have experienced great difficulty in obtaining longleaf pine ties from the Southern States and have appealed to the Bureau of Forestry for assistance. The Director of the Bureau has suggested the use of beech, maple and birch instead of pine, these to be seasoned and preserved just as beech is seasoned in France. The Great Eastern Railroad of France is said to have succeeded in preserving beech ties for 35 years by impregnating them with tar oils. Should it be found practical to preserve harwood timber in this manner even for a shorter period than is done in France, the railroads have expressed their intention of acquiring large areas of timber lands on which they will grow their own trees, cut their own ties, and thus be assured of a steady supply.

Other new uses for hardwood timber will doubtless be discovered as time goes by, and our advice to owners o f hardwood stumpage is to preserve it, and before many years it is likely to be much more valuable than it is to-day.

WARNING TO CANADIAN EXPORTERS.

In view of the recent gratifying increase in Canadian exports, some suggestions may be offered to shippers which, if adhered to, may tend to further swell the volume of our foreign trade. The exporter should become thoroughly acquainted with the conditions of the country and know exactly the class of goods required. With this information, he should aim to ship goods which will be considered satisfactory in character and in conformity with the specifications. Substitution of other goods for those ordered should not be permitted. It is a great mistake to jeopardize future prospects of trade by making a wrong beginning. The shipper who sends forward inferior goods is not only likely to suffer a loss himself but gives a black eye to Canadian exports in general, for until the trade shall become thoroughly established the class of shipments received will be to a large extent the determining factor in placing further orders.

Promptness in making shipments is also very necessary. If goods are not shipped within a reasonable time after the order is received, the conditions in the country for which they are destined may have undergone changes and prices have weakened accordingly, thus rendering the importer liable to sustain a loss.

The Canadian consuls frequently call attention to the mistakes of shippers. In his last report to the Department of Trade and Commerce, Mr. Jardine, Commissioner at Cape Town, South Africa, gives one instance of several he has met with. A Canadian firm of commission merchants in Johannesburg ordered a large quantity of building material for the government railway. After some months about $15,000 worth arrived, and on examination the government refused to take the timber on the ground of its not being first quality as ordered, and accordingly cancelled the balance of the order. The commission firm, however, had already accepted sight draft and paid the price for first quality timber. Mr. Jardine confirms the government official's opinion that the timber was of inferior quality. A buyer for it had not yet been found at time of his last report, notwithstanding that timber of all kinds is in great demand at Johannesburg. This transaction became common knowledge, greatly to the detriment of the Canadian export trade.

Mr. Larke, Commissioner in Australia, calls attention to delayed shipments, careless packing, and substitution, as being great barriers to trade, also that frequent differences arise in respect to accounts. Where goods are sold c. i. f. (cost, insurance and freight), shippers usually make no allowance for exchange where payment is arranged for in Canada. The full price is collected and the buyer finds the exchange charged up against him at his bank. As this amounts to 2½ per cent., it is a considerable item. Again, where credit is given for freight to be collected at port of destination, the credit commonly is at the rate of a pound sterling for $4.86, whereas the shipping companies collect at the rate of $4.80 to the pound, a loss to the buyer of three pence in the pound.

The Canadian government officials appear to be working energetically to increase the export trade of Canada. They have adopted the policy of giving specific information of market requirements and of enlightening shippers in respect to methods of manufacture as far as it is possible to do so. With a continuation of this work and the co-operation of manufacturers and shippers, the exports of this country should continue to grow.

IMVESTMENT IN CANADIAN TIMBER LIMITS.

Many millions of dollars of United States capital have been invested in Canadian timber limits. The depletion of the white pine in Michigan formed the first pretext for such investment, which was confined largely to the Georgian Bay district of Ontario. The embargo on the export of saw logs from the province, passed about four years ago, was the means of turning the attention of prospective buyers to the other provinces of the Dominion. The International Paper Company have steadily added to their holdings of Quebec limits, and are to-day in possession of vast areas. The wave of buying sentiment extended to the east, and during the last two years capitalists from across the border have become owners of large timber lands in Nova Scotia and Cape Breton. The properties in the east have, with few exceptions, been purchased with a view to the utilization of the spruce timber for pulp, although several saw mills are also projected.

Perhaps the area of timber lands in New Brunswick held by United States parties is less than in any other province of the Dominion, for recently there have been heavy investments in British Columbia timber. Notwithstanding the claim that much of the timber is difficult to log, that province seems to offer a very promising field for future lumbering operations.

An indication of the trend of the times is furnished by the purchase of Canadian limits by concerns in the Eastern States who have heretofore conducted a wholesale business exclusively—Messrs. Easton & Company, of Albany, for example. Owing to the increasing difficulty of obtaining a lumber supply, due partly to the decadence of the white pine, and fearing a loss of trade thereby, such firms are taking the precaution of buying standing timber, thus rendering a supply of lumber absolutely certain.

The timber industry of this country, it will be seen, is being developed upon natural and very satisfactory lines. Too much timber is still being exported in its raw state, but this will eventually be remedied, and to those of our neighbors who are disposed to invest their

money and establish mills on this side on an equal footing with Canadians, we extend a hearty welcome. There is a vast amount of timber yet in Canada, which, if properly conserved, should meet the requirements of generations to come.

EDITORIAL NOTES.

The formation in Toronto of a branch of the Hoo-Hoo Order has the proper ring about it. Mysterious as it is, it will doubtless tend to bring the members of the lumber trade into closer touch with each other. Before the coveted nine thousand nine hundred and ninety-nine is reached, as many Canadian lumbermen as possible should seek admission within the fold.

Those who six months ago boldly predicted a break in lumber values before midsummer of this year must feel like taking to the woods. Prices have been universally steady, even in the face of labor troubles and other unfavorable conditions. Manufacturers of lumber are in a strong position financially as a result of the prosperity of the past few years and are not disposed to sacrifice stock whenever there may be a temporary check in the consumption. This will no doubt be a telling factor for some time to come.

The policy of the new British Columbia Government in relation to the timber industry is still in doubt. It is know that the present Premier is bold in his methods and fearless of consequences, and by some it is predicted that a complete change of the timber laws will be made. In our opinion this is improbable. Doubtless the existing laws can be improved in many ways, but the policy of prohibiting the export of timber and of encouraging home manufacture should be continued. The plea of the logger to be allowed to export timber is not in the interests of the country. The regulations should also aim to preserve the timber supply without in any way crippling the lumber indusry.

Righteous indignation seems to have been engendered by the action of the United States Interior Department in respect to the cutting of timber on the Chippewa Reservation in Minnesota. An act of Congress approved June 27, 1902, provided for the sale of certain lands belonging to the Chippewa, Mississippa, and Winnebigoshish Indian Reservations. The Secretary of the Interior was instructed to get estimates of the amount of standing pine and to offer it for sale under such rules and regulations as he deemed advisiable. In accordance with this provision a tract of 110,000 acres of pine lands, on which there is standing 235,000,000 feet of pine timber, is to be offered for sale on December 5th next, to be followed a few weeks later by 200,000 acres on which competent lumbermen figure there is a billion feet of timber. The regulations provide that parties whose bids are accepted shall be required to move the timber before July 1, 1905. This practically leaves but one logging season, that of 1904-5. The placing of so much timber on the market in a single year will, it is feared, somewhat demoralize the lumber industry and at the same time reduce the price of stumpage. The wisdom of the Government's action is questioned, and very rightly so. It seems to be directly opposed to the policy of economical cutting of timber and to the objects of the friends of forestry.

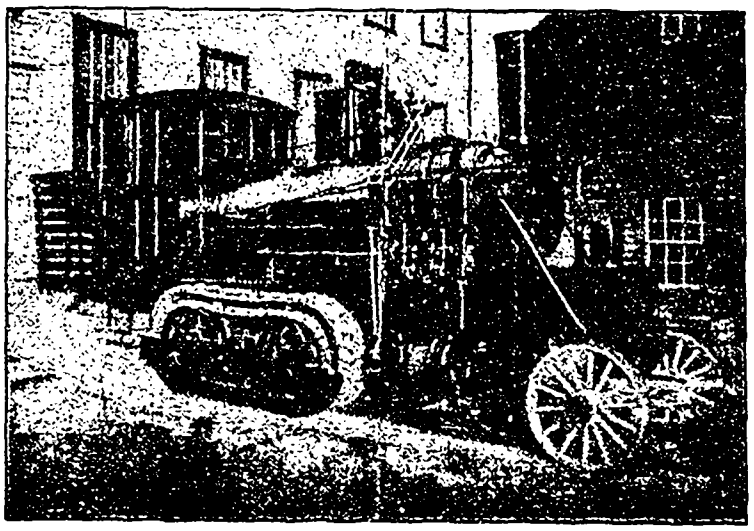
STEAM LOGGING OUTFIT.

The accompanying illustration represents a type of steam log hauler which has been used with some success in the spruce forests of the Eastern States. It is mounted on wheels in the summer and a sled in the winter. An endless lag bed makes the rear runner carry practically the whole weight of the machine of 15 tons with the exception of about one ton that bears on the forward sled. The runner is driven by a pair of engines and takes its steam at five-eighths stroke, so it can never get on dead centre.

The runner, or endless lag bed, is made of steel castings jointed together in such a way as to run over the sprocket wheels with toe cocks cast on them, the same as on a horse, so when they come in contact with the snow or ground there can be no slipping, even if it strikes the glare ice. This runner is driven through its rear sp ocket wheel, which is constructed in such a way that the runner can tilt at any position that the road may require. The entire weight of the machine sets on a 5-inch axle running through the runuer and hung loose at the ends so that the runner always tilts easily over rough going, rocks or anything that it may come in contact with, with a remarkable easy and quiet motion, which it is impossible to get from a round wheel.

The machine is the invention of O. A. Lombard. It is driven by a 100 horse power equipment. The boiler is a regular locomotive boiler fitted with the necessary injectors, water tank and suction hose for taking water from springs or streams along the road. Wood is used for fuel. The machine is reversible, the same as a locomotive, and will run one way as well as the other. It has a force draught, caused by the exhaust, the same as a locomotive ; it also has a governor on the steam pipe just before it branches to each engine, which governor controls the speed of the machine and is belted to the main shaft. This governor is set to give the machine a speed of 5 miles per hour, and presents the advantage that the engineer may pull the throttle wide open and the machine will take care of its own speed in plunging in and out of sharp pitches and cradle knolls, and gets the necessary steam for up hills.

The reason for using two sets of double engines, making four cylinders in all, is to get rid of the compensating gear. Tests that have been made show the logger capable of carrying 20,000 feet of spruce logs per load over a logging road of seven miles and making two trips per day. It is claimed that there is a vast saving in expense as compared with horses.



STEAM LOGGING OUTFIT.

ARRANGEMENT OF A FILING ROOM.

The drawings herewith are intended to give an idea of the arrangement of a filing room in which it is designed to care for band saw blades. Figure 2 is a ground plan of such a room, in which A represents the hammering bench ; B, the brazing table ; C, the automatic sharpener, with wheels f and f' and stands and straining device g. In connection with it is also shown the saw vise, d.

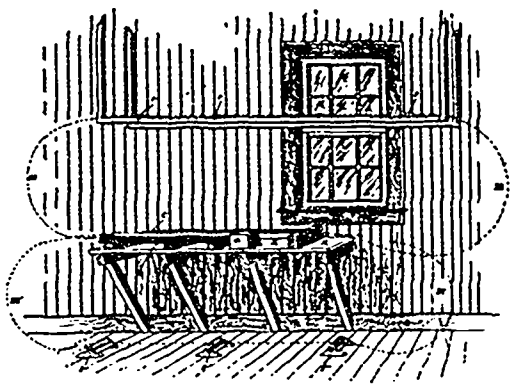


FIGURE 1.

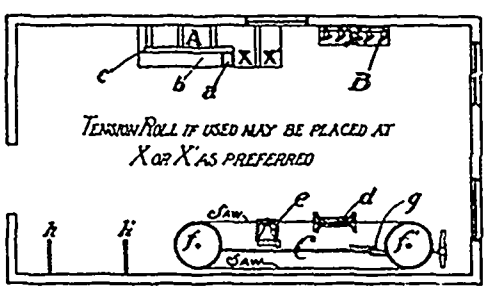


FIGURE 2.

The hammering bench is also shown in perspective in Figure 1. The location of the bench and tools with reference to the window and to each other is clearly shown : a represents the anvil, b the leveling block, c the long straight-edge, and x and x' the positions for tension roller, if one be used. The dotted line m m shows the saw in position to hammer the inside of the plate, and the line m' m' the outside thereof.—From W. B. Mershon & Company's 1903 Catalogue.

BETTER SYSTEM NEEDED IN MANUFACTURING.

Good machinery is not more essential to the success of a manufacturing enterprise than is a thoroughly modern office and factory system. Every machine in your plant may be of the latest and most expensive model, but if the system upon which your business is conducted is antiquated and inefficient you will be behind the race and will probably meet with disaster.

Scarcely too much emphasis can be put on this point. Repeatedly I have been impressed with the extent to which the manufacturer is inclined to depend upon progress in machinery and to neglect progress in office and factory methods. If his machinery is in any way yeilding unsatisfactory results, the first thing the manufacturer seems to think of is "Get a new machine or hire a new man." This is the common panacea, and hundreds of manufacturing enterprises have failed simply because improved machinery was expected to accomplish what could only be done by means of good sound business system—that established routine of order acting along the lines of common sense and sound principles.

Perhaps it would be easier for the manufacturer to see the situation in its true perspective if, for the moment, he would look at the business organization of his house as a machine, to be improved and brought up to a higher degree of efficiency through his intelligent effort along the line of progress. Certainly, the moment he began to view his house as a machine—and the most important one in his plant, too—he could no longer remain indifferent to this phase of his business.

A cardinal weakness in most factory systems is a failure to get at the cost of production with sufficient accuracy. Every article, book or document that will in any manner throw light upon this difficult problem should be eagerly sought by the progressive manufacturer. He can afford to neglect nothing which will aid in the accuracy and ease with which his cost of production is to be determined. Here is a matter in which guesswork will not do, and where a fraction of a cent, in the ultimate findings, is of serious moment.

Considering the importance of figuring the cost of production to the finest fraction, the laxity of the ordinary methods of computation is surprising. When it is remembered that the price he is to receive for his product, and consequently the extent of his profit, depends upon the exactness with which he is able to arrive at the cost of production, no argument will be needed to make plain to the uninitiated the importance of this factor in the manufacturer's office system. However, I cannot refrain from repeating that here is the common stumbling block, so far as the accounting methods of the manufacturer are concerned.

If a man knows what every article he manufactures costs him to produce, and is absolutely certain that not the most insignificant element of that cost has by any chance been omitted, he is in a position to meet competition and to meet it closely. And unless he has a cost system that demonstrates this result to a certainty, his profits will, on those cases of "close figures," mysteriously change into losses.

Let me illustrate this phase of the matter by the supposition that the buyer for a big department store comes to me and asks for figures on a certain large number of tables. When I give him my price he replies: "You are just $1,000 too high on the lot. I can get it from the other factory at $1,000 under your price. As a matter of fact, I would rather get the goods from you, and if you'll meet the other factory's price you may have the order."

Right there is where the test comes upon the cost system of the house. We will say that I could meet the figures of my competitor and still have $500 profit, provided every possible element of cost has been included in the estimate. But if there has been a single omission of any consideration whatever, I will lose by taking the job.

It is human nature to make close prices and meet competition, but I believe that in most instances where this is done the small margin of profit counted upon resolves into a small margin of actual loss through the failure of the original figures to include every element of direct and indirect cost. It is a remarkable cost system which is so perfectly constructed that nothing can be left out. But it is possible to have a system so carefully devised that 99 per cent. of cost possibilities are provided for.

Another important result achieved by a thorough system in a manufacturing business is to save waste of time on the part of expensive heads of departments, thus allowing them to give their whole effort and attention to executive matters of genuine importance. In other words, the complete situation in every department should be presented by regular routine.—Alexander H. Revell, in System.

WASTEFUL AND UNNECESSARY.

A correspondent of the Indianapolis Woodworker says: "To get out rough heading 1½ to 2 inches longer than the diameter of the finished head is wasteful and unnecessary, and many managers will not tolerate it. I have turned thousands of sets of flour-barrel heading 17⅛ inches diameter from rough stock 18 inches long. I think that to allow a very large margin like that causes men to do their work in a slipshod, inaccurate manner. It leads them to consider a great diversity of lengths as good enough and later to conclude that any old thing is good enough for anything all the way through their duties. Aside from all that, a diversity of length always gives trouble at the heading saw. The adjustment of the dogs to catch different lengths of blocks, every few blocks, will make cuss words come to the surface if they are anywhere in the vicinity. Again, the sawyer is apt to try to saw blocks that are too short for the dog adjustment and let the block get away from him —then what?"

N. Thompson, of Thompson & Campany, Vancouver, B. C., recently made a business trip through the Arrow Lake and Lardeau country. He secured several orders for machinery, including one for eight engines and boilers for a steamer for the Yale-Columbia Lumber Company.

MORE EXPANSION.

The well known saw manufacturing firm of E. C. Atkins & Company, Inc., of Indianapolis, Indiana, has been making rapid strides during the past ten years, their business having grown to immense proportions in all parts of the world, necessitating the establishing of branch houses and salesrooms.

This wonderful growth has been followed by a corresponding increase in the capacity of their great plant and, during the past four years, they have added several new and extensive buildings, such as their wood-working factory, hand saw building, gas works, etc.

But the continued great demand for the saws and tools bearing the Atkins brand has rendered even these many improvements inadequate for their requirements, and they were confronted with the problem of moving away from their present location, or acquiring a larger amount of land adjoining, in order to properly care for their rapidly increasing trade.

Thus was necessitated the most important step this firm has taken for several years. They have just purchased the entire plant occupied by the Parry Manufacturing Company, the largest buggy manufacturing concern in the world, employing over fifteen hundred men. This property joins the factory on the south, and consists of several large, well arranged brick buildings, besides several of small size, which can readily be made suitable for their needs

The magnitude of the Atkins plant, when the property just acquired is fitted up, can easily be judged when the fact is made known that the entire works now cover about three blocks, and most of this space is solidly built up with three, four and five story brick buildings. It is unquestionably the largest saw factory in the world to-day.

Messrs. E. C. Atkins & Company have branch houses at New York City, Memphis, Tenn., Atlanta, Ga., Minneapolis, Min., and Portland, Ore., besides sales offices in Chicago, Ill., St. Louis, Mo., Toronto, Can., London, Eng., Melbourne, Aus., Capetown, S. A., Paris, France, and elsewhere.

PERSONAL.

Mr. Charles C. Hughes, eldest son of Mr. C. Hughes, a retired lumber merchant of Montreal Junction, died suddenly in Montreal on July 12th from heart failure.

Mr. R. B. Eddy, a member of the firm of Eddy Bros. & Company, Blind River, Ont., was recently married to Miss Randall. Mr. and Mrs. Eddy will reside at Blind River.

Mr. W. B. Tindall, secretary treasurer of the Ontario Lumbermen's Association, has been elected vice-chairman of the Toronto branch of the Canadian Manufacturers' Association.

Mr. W. B. Mershon, of Saginaw, Mich., recently spent some time fishing in the Cascapedia region, in the Province of Quebec, and is said to have enjoyed the outing immensely.

Mr. Tichnor, office manager for the Pigeon River Lumber Company, Port Arthur, Ont., has tendered his resignation, to accept a position at Spokane, Washington Territory.

Judge Richards, of Winnipeg, has been appointed by the Dominion Government to hold an investigation into the complaints of an alleged lumber combine in the lumber trade of the North-West.

Mr. D. C. Craig, of Toronto, left last month for Newfoundland, where, in association with Mr. Alex. Barnet, of Renfrew, he is understood to be looking into the question of investing in timber limits.

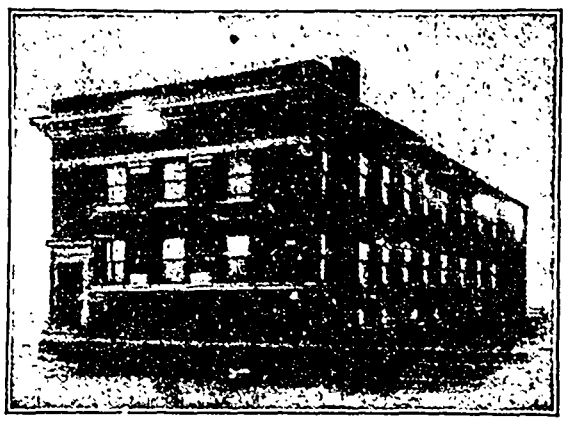
Mr. R. C. Milvert, of the Imperial Forestry Service, India, was a recent visitor to Toronto. He is making a tour of the world on a year's leave of absence, inquiring into the forestry systems of the different countries.

Mr. Donald D. Craig, a graduate of the Ontario Agricultural College at Guelph, has been appointed on the staff of the United States Forestry Department at Washington. He has been sent to do some field work in Southern California.

AMERICAN BLOWER COMPANY'S NEW OFFICE BUILDING.

The accompanying cuts show the spacious new office building lately built by the American Blower Company, of Detroit, Mich. The business of this company has increased so rapidly during the last two years that the old offices, which occupied valuable space in one of the factory buildings, became entirely inadequate to accommodate the increased office force.

This new building is devoted entirely to the Company's offices and is located on Russell street at the head of Harper avenue. No expense was spared in



NEW OFFICE BUILDING OF THE AMERICAN BLOWER COMPANY, DETROIT, MICHIGAN.

making this building a model of convenience and taste, and the building without question represents the highest development in modern office construction. The architectural design by Malcolmson & Higginbotham, architects, of Detroit, follows closely approved classic proportions, and the detail is adapted Colonial.

The first floor is occupied entirely by the different commercial departments, while the second floor is used by the engineering and drafting departments. The basement is used for the storage of catalogues, letter files, etc. The small building on the roof is the blue print and dark room, being located in that position to secure the best light for sun printing.

The building is equipped with every modern convenience, including electric lights, annunciator bells, dumb waiter, an outside telephone system and an independent inside, or house system, inter-connecting all offices and different departments in the shop. A switch-board for each of these systems is located in the lobby.

But the main interest in the equipment of this building is in the mechanical system of heating and ventilating. As the manufacture of heating and ventilating apparatus forms a large part of the American Blower Company's business, this part of the office equipment naturally received due attention. This system, it is claimed, represents the very largest and best practice in heating and ventilating. It has every possible advantage, with none of the many disadvantages of direct steam or hot water radiation, by producing an even, pleasant temperature, and perfect ventilation without drafts. In general the operation of the system is as follows :

The apparatus is located at one side of the basement, as shown in the accompanying plan. The fresh air enters the building through the basement window "F" and by means of the fan "A" is drawn over a coil of pipes "E", called the tempering coil. The steam pipes in this tempering coil are just sufficient in number and length to heat the volume of entering air to a temperature of 65 or 70 degrees Fahr. The fresh air is then drawn into the fan and forced over another heater "O". This is the main heater and is designed to heat the air to about 140 degrees. Beyond the heater is located a large brick chamber "G" called the plenum chamber. This serves as a reservoir for the heated air and from this chamber the air is conveyed by galvanized iron pipes "H" to the various offices. Under the main heater "D" is a passage or by-pass, as it is called, which permits a part of the air from the fan to pass under the main heater coil and into the plenum chamber. This passes into the lower section of the plenum chamber, which is separated from the upper part. Thus the plenum chamber is divided into two parts, as shown by accompanying sectional elevation, the upper chamber containing hot air at approximately 140 degrees and the lower section tempered air at 70 degrees.

As shown by this sectional view, each individual pipe leading off to the offices above, has two connections to this plenum chamber, one branch to the upper section and another to the lower. In each main where the pipe divides into these two sections there is located a set of double swinging dampers, or mixing dampers. Each set of these dampers is controlled automatically by a diaphragm valve shewn on the outside of the pipe in the sectional view. These automatic valves are part of a system of automatic heat control which was furnished by the Johnson Service Company, of Milwaukee, Wis. These valves are operated by compressed air, which is supplied by a small air compressor, located in the basement. This compressor works by city water pressure and delivers air at about 15 pounds pressure. The system of temperature regulation is as perfect in operation as it is simple in principle. In each office is located a thermostat which can be set to control the room temperature at any desired point. These thermostats work upon the principle of the unequal expansion and contraction of brass and steel. These thermostats are all connected by head pipes, of about 3/8" bore, with their respective diaphragm valves. On the expansion or contraction of a piece of brass and steel in the thermostat, air pressure is admitted or cut off from the diaphragm valve and the mixing dampers are swung one way or the other as the case may be. It will be noted that these mixing dampers in swinging do not cut off the flow of air, but simply vary the proportion of hot and tempered air as controlled by the thermostat to maintain a constant temperature in the room. Thus a constant flow of pure air of the proper temperature is maintained to all times. Under the tempering coil there is also a by-pass similar to the one under the main heater. This by-pass is fitted with a swinging damper which is controlled by a thermostat placed in the upper part of the plenum chamber. Thus if the air in the plenum chamber becomes too hot, the thermostat opens the damper under the tempering coil, instead of through it. The air is admitted to each room at a point about eight feet above the floor.

As shown in the accompanying cut the fan is operated by a direct connected vertical engine. This engine is also the American Blower Company's own make, and is specially designed for this class of work.

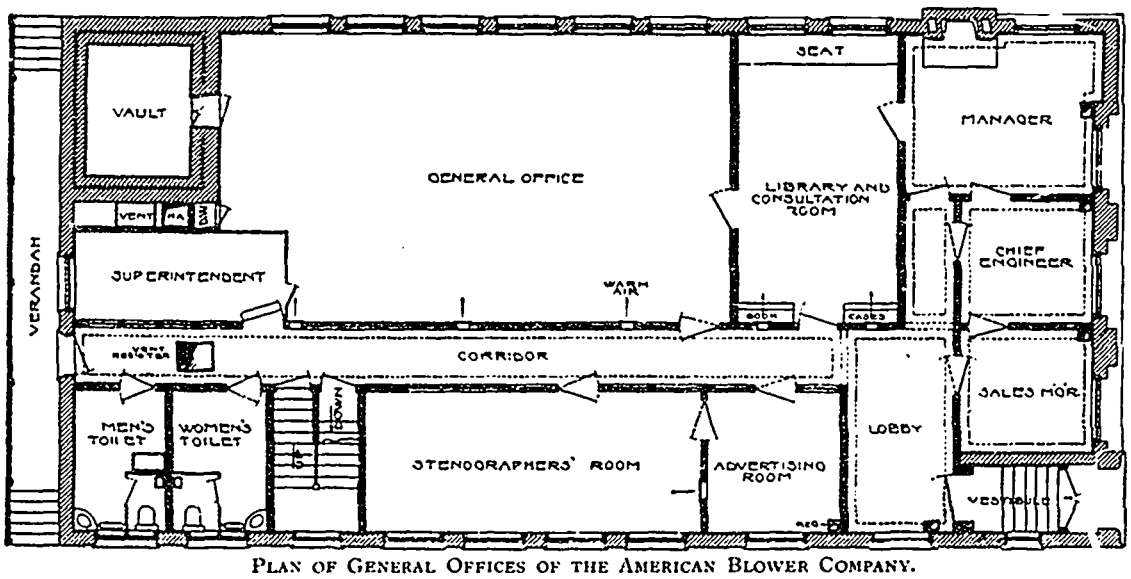
Another unique feature of this plant is the exhaust fan, which is direct coupled to the same engine which runs the heating fan and which draws the impure or vitiated air out of the building. Thus while one fan is discharging pure warm air into the building, the other fan on the same shaft is drawing out the impure air. This is the main feature of mechanical ventilation which has brought it into such general favor during the last few years for use in public buildings.

In each office on the first floor there is located an ornamental register face at the floor line, opening into the corridor which extends through the centre of office. The air is thence drawn down through the large register in the floor at the rear of the corridor and after passing through the exhaust fan is forced outside the building. The air from the drawing room and second storey offices is drawn down through the flue at side of vault.

The condensation from the heating apparatus is returned to a Webster feed-water heater located in the engine room of the factory, by means of the Webster vacuum system, which was furnished by the American Engineering Specialty Company, of Chicago. This same system handles all the condensation from two other heating plants located in the factory. The advantage of this vacuum system is that it eliminates the back pressure from the factory engine when using exhaust steam for heating and also removes the air from the heating coils and connecting pipes as fast as it accumulates, thus making the heating surface far more effective than it otherwise would be.

Only one thing remains to be mentioned, and that is the economy of this system. As the heating coils utilize the exhaust steam from the factory engine, which is brought into the basement through an underground conduit, and as the fan engine exhaust is also turned into the heater coil, the cost of operating the system is practically nothing, as only steam that would otherwise be wasted is used, and without back pressure. It is claimed that no other system offers the same economy, even temperature and pure air that this system does.

Taken as a whole, this building with its equipment is by many said to be the most complete of any building of a like character to be found in the United States.



PLAN OF GENERAL OFFICES OF THE AMERICAN BLOWER COMPANY.

NOTES ON THE PROPER CARE OF BOILERS.*

BY JOHN M CONNAUGHY.

There has been a great deal written by different authors on the subject of care and management of boilers. Valuable advice has been given, yet boiler explosions and accidents still occur. Therefore too much cannot be said to impress upon the mind of the stationary engineer the importance of taking care of boilers.

The first and most important thing to begin with is a good, sound boiler, for if the boiler is an old and dilapidated concern, the best and most skilful engineer cannot make it safe and reliable, and the only advice I can give in any case like this would be to have nothing to do with it, as not only his reputation as an engineer would be at stake, but also his life and the lives of others.

When taking charge of a plant that has been run for some time, the engineer should lose no time in ascertaining as far as possible the exact condition of the boilers, and at the first opportunity he should make an internal and external examination, and see that they

*A paper read before the Ohio Society of Mechanical Engineers.

are free from scale and incrustation. If they are not, he should see that they are thoroughly cleaned both inside and outside of the shell. When a boiler is once thoroughly cleaned, the competent engineer will always resort to the proper means of keeping it so, as far as conditions will allow.

The accumulation of scale can be in a measure avoided by blowing small quantities of water from the bottom and surface blow-offs, as all minerals held in suspension become of greater specific gravity than the water. When heated, the tendency by specific gravity is to settle towards the bottom, while the lighter portions remain upon the top and float in the form of a scum. I have found that by frequent blowing from the surface and bottom blow-offs much of the mineral substance which forms scale will be carried out before it can settle sufficiently to attach itself to the iron. By so doing much of the trouble from scale may be avoided.

Notwithstanding all the care that may be taken, in some localities where the water is largely impregnated with minerals, a certain amount of scale will accumulate in spite of the efforts of the most careful and experienced engineer. There are various devices and compounds on the market which have proved effective and in a measure beneficial for preventing this scale. Others are of a doubtful character, and I would advise before using a compound to have a chemical analysis made of the feed water, as the nature of the supply receives too little attention.

I know engineers having charge of boilers with man-holes under the tubes who do all their cleaning from below the tubes and do not open the boiler on top. As it is impossible to wash all the dirt down from the top by washing from the under sides of the tubes, the boiler is in bad condition above the tubes before they know it and they will tell you that the boilers are in good shape inside.

In cleaning boilers, all manholes and handhole plates should be taken out, and the washing should be done from above and below the tubes. The engineer should then go inside the boiler and clean between them so that any scale that has been lodged between the tubes can be taken out. On the inside, all the seam heads and tube ends should be examined for leaks, cracks, corrosions, pitting, and grooving. The condition of stays, braces and their fastenings should be examined. The shell of the boiler should be thoroughly cleaned on the outside, as soot is a bad conductor of heat, holds dampness, and is liable to cause corrosion. All valves about the boiler should be kept clean and in good working condition. The pumps or injectors should be in the best working order. The connections between the boiler and water column, and also the gauge glass, should receive the closest attention, but they are sadly neglected by some engineers. The brickwork should be kept in good condition, and all air holes stopped, as they decrease the efficiency of the boiler, and are liable to cause injury to the plates by burning.

There should be a good heater in connection with the boiler, and the water feed as hot as you can work it, for feeding cold water causes too much contraction and expansion. This causes vibration in the seams, and makes them weak at those points. For example, if 80 lbs. of steam will do your work, never carry any more nor any less, as the rise and fall in pressure cause expansion and contraction of the plates.

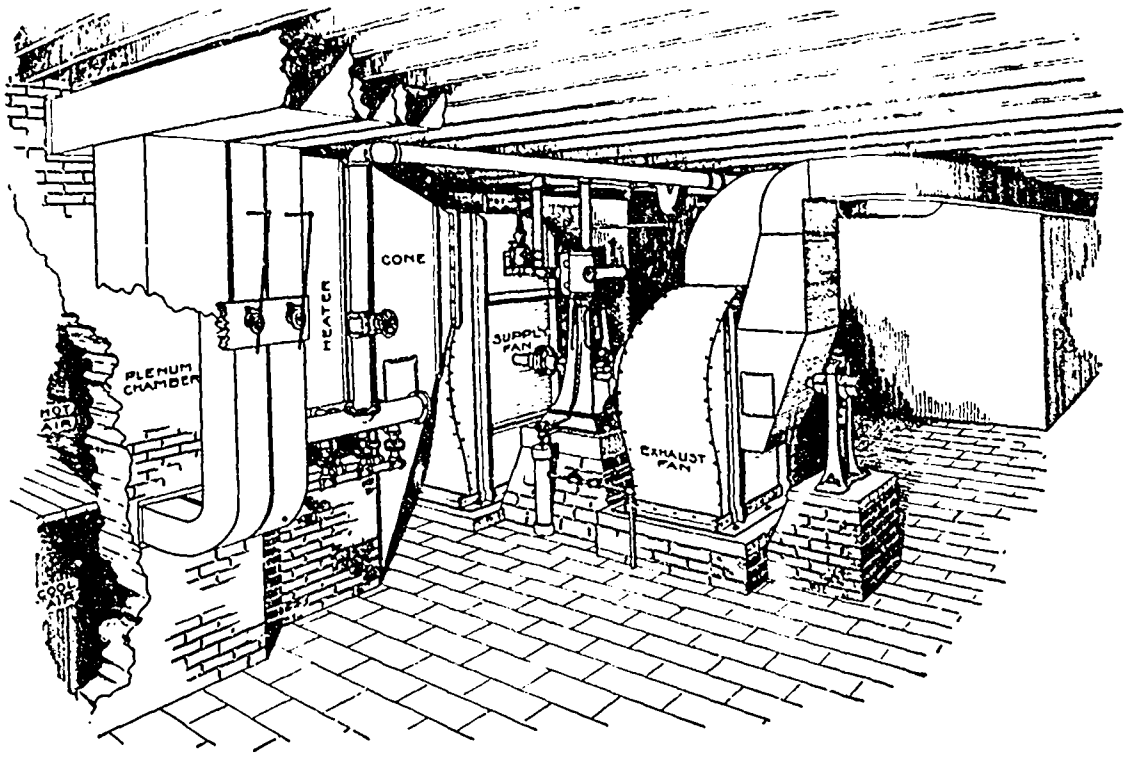
Never open the fire doors to cool your boiler. Close the ashpit doors and open the smokebox doors in case you get too much steam, as opening the fire door causes too much contraction by the cold air cooling the furnace. It would be better to allow steam to blow off from the safety valve, which will not in any way injure the boiler.

The safety valve should be raised from its seat every day to make sure that it does not stick from any cause, and observe from the steam gauge if the valve blows off at the pressure it is set for.

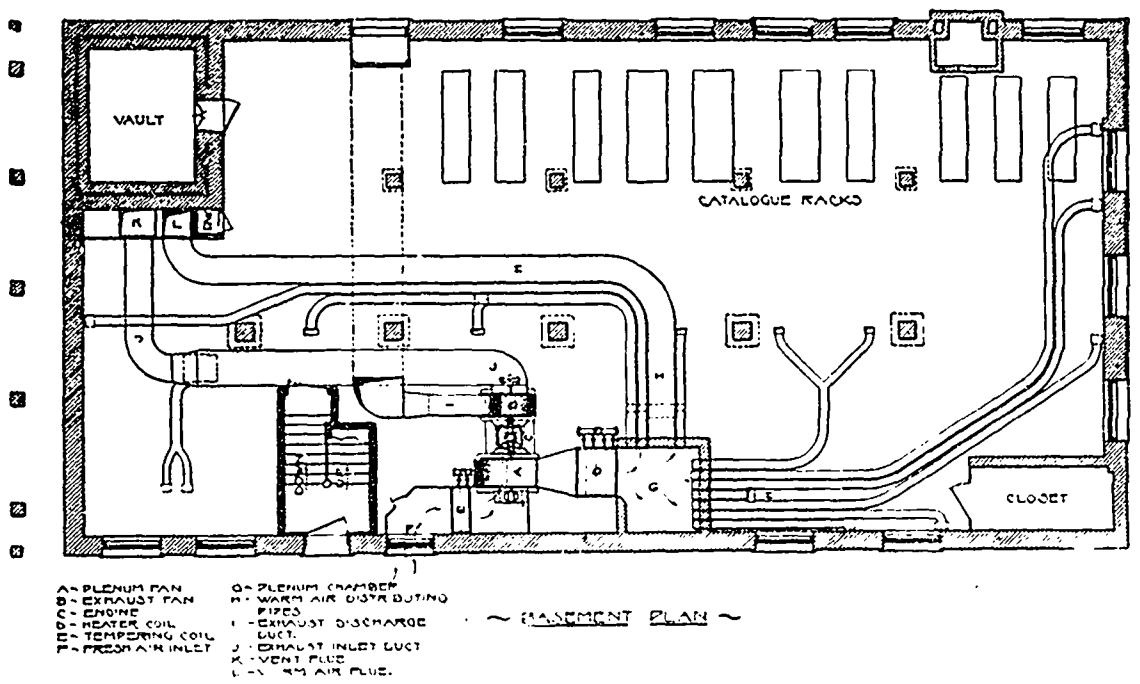
It is of the highest importance to keep the blow-off pipe free from sediment of any kind, as the pipe is liable to fill up and burn off, and the only way to keep it free is to open the blow cock often enough to keep everything flushed out.

The best time to blow off is in the morning before the fires have been started up, as a good deal of sediment in the boiler will then have settled to the bottom of the shell, and much of it will pass out when the cock is opened. Noon is also a good time, after the fires have been banked for half-an-hour or more, so that the water in the boiler has been quiet long enough to deposit the particles that are being whirled about with it through all parts of the boiler.

When the blow-off cock is opened, it must be remembered that it is not to be yanked wide open and then closed the same way. This practice is very dangerous. No valve about a steam system ought to be closed suddenly except in time of emergency, because the sudden strain on the pipe and fittings is liable to cause a rupture in the pipe or else break the elbow or valve. The boiler is the life of any plant, and my advice to all owners of steam plants is to keep a first-class engineer, one who is strictly temperate, pay him good wages, and give him the necessary material, and his plant will get the proper care and management.



HEATING AND VENTILATING SYSTEM IN AMERICAN BLOWER COMPANY'S NEW BUILDING.

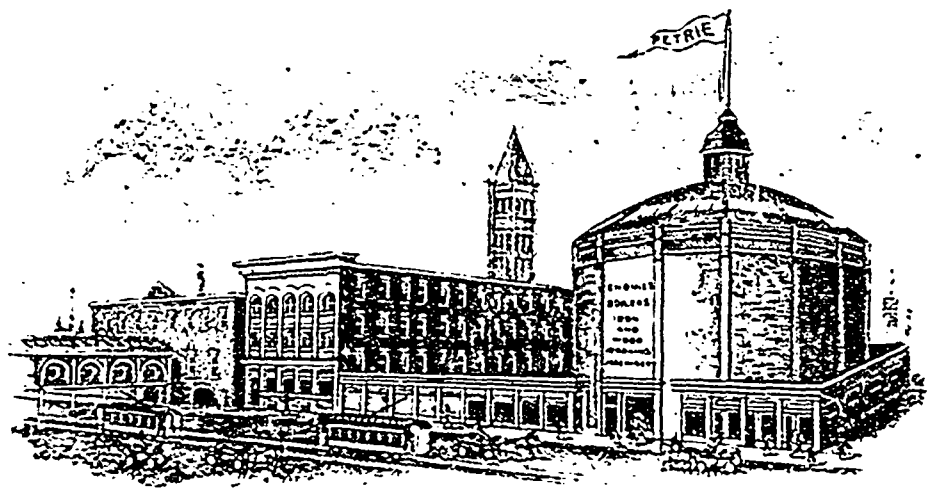


BASEMENT FLOOR OF AMERICAN BLOWER COMPANY'S NEW BUILDING, SHOWING ARRANGEMENT OF HEATING AND VENTILATING APPARATUS.

---The announcement was made recently that Paul Martin and Col. John Wei , of New York, and Walter S. Eddy, of Saginaw, had closed a deal for 2,500,000 acres of timber land in Mexico, said to contain 10,000,000,000 feet of standing timber. Mr. Eddy returned last month from a trip of inspection of the property and is reported to have withdrawn from the purchasing syndicate. He thinks it will be years before that country will be sufficiently developed to take a much greater quantity of lumber than it does now, and regards Canada as affording him a much better field for operations.

MACHINERY EXHIBIT.

An attractive exhibit is that of H. W. Petrie, the well-known dealer in general machinery, Front Street, Toronto. In common with other industries in Canada, they have found their old quarters inadequate to meet the demands of the rapidly developing trade of the country, and therefore determined to annex a large new warehouse. This addition more than doubles the space lately occupied, giving a floor



H. W. PETRIE'S MACHINERY DEPOT—VIEW FROM STATION STREET.

space of over sixty thousand square feet.

The illustrations we give herewith will serve to show the magnificent nature of this new machinery depot, situated as it is right in the centre of the city, next the Union Depot.

The new addition will be used for the display of new machinery only, the re-built machinery being shown in the building that has been occupied for years. By the great improvement Mr. Petrie will be able to meet adequately any demands that may be made upon him for the requirements of the trade.

During the Exhibition in Toronto, the new building will be open to the public daily, and also in the evenings, when it will be gorgeously illuminated by electricity. The immense dome of the new building has its galleries draped with bunting and flags. Three more large galleries and an immense crane are to be put in the building. Thirty car loads of new machinery of all kinds is now exhibited. Altogether nearly one thousand machines and parts are exhibited, which makes it a magnificent sight and of great interest to all users of machinery.

A cordial invitation is extended to all visiting Toronto to call and see this exhibit. Those arriving by train can walk through the Depot into the Petrie Machinery Exhibit and take street cars at the main door for any part of the city.

The complete stock of iron and wood working tools here shown includes such lines as are manufactured by the Cincinnati Milling Machine Co., the Cincinnati Planer Co., the Bickford Drill Co., the Waterous Engine Co., London Machine Tool Co., and many other makes of high grade tools.

The shipping facilities of the Petrie Company are unexcelled. Both the Grand Trunk and Canadian Pacific lines run right up to the premises, while the wharves are conveniently near.

MUTUAL POLICY CONTRACTS.

The following paper bearing upon the subject of lumber fire insurance was read at the last convention of the National Wholesale Lumber Dealers' Association by Mr W. C. Johnson, president of the Lumber Mutual Fire Insurance Company of Boston:

In addressing this meeting of companies specially engaged in the insuring of lumber and woodworking risks, I have to congratulate you all on the success attained by the several companies in undertaking insurance of risks always considered by all underwriters as extra hazardous. I attribute this success principally to the fact that you are mutual companies.

I am informed, and I believe it to be true, that companies which issue both stock and mutual policies, insuring identically the same classes of risk and at the same rate, find the loss ratios to premiums larger on the stock policies than on the mutual policies.

MUTUAL POLICY HOLDERS MAKE FAIR CLAIMS.

The mutual policy holder has an interest in the company, which tells in increased care and attention to his own risk, with resulting benefit to the company in saving on losses and to himself in increased dividends.

When losses come the policyholder in a stock company, understanding that the stock company is in the business for profit, he cannot help but feel, in greater or less degree, according to the man, that it is his turn now, and the majority feeling they have always paid to high a rate, the loss claim is certainly made no less because of that feeling.

In loss claims of a mutual company which has fixed a reasonable rate and paid a reasonable and regular dividend, the assured's claim is, in a great majority of cases, fairly made up to cover his actual loss and damage, and all idea of making a profit out of the fire eliminated.

For these reasons in making it my special business to adjust the losses for the Lumber Mutual, the adjusting of all losses the past eight years without a reference in any case has been due as much to the fairness of the claims as to any particular skill of my own in such business. There have been claims presented I could not approve, but we always manage to make a compromise adjustment. Lumbermen are used to settling differences amicably, so we get along well.

Having such fair and reasonable policy holders, I know that every man representing these mutual companies has always in his mind, as his first duty, to do equal and exact justice between the policy holders as to all matters of jugdment on his part relating to rates and conditions of contracts.

Comparison of the risk under consideration for the time being with other risks of like character and like protection is one of the fairest ways to arrive at a correct rate. It is, however, absolutely essential to correct and fair judgment that the conditions of contracts be alike, as to the risks compared. I will go further and say that it is absolutely essential that all risks in a mutual company under like conditions of exposure and protection must have identical conditions in a policy contract or you cannot do a mutual and equitable business or fix an equitable rate on each risk.

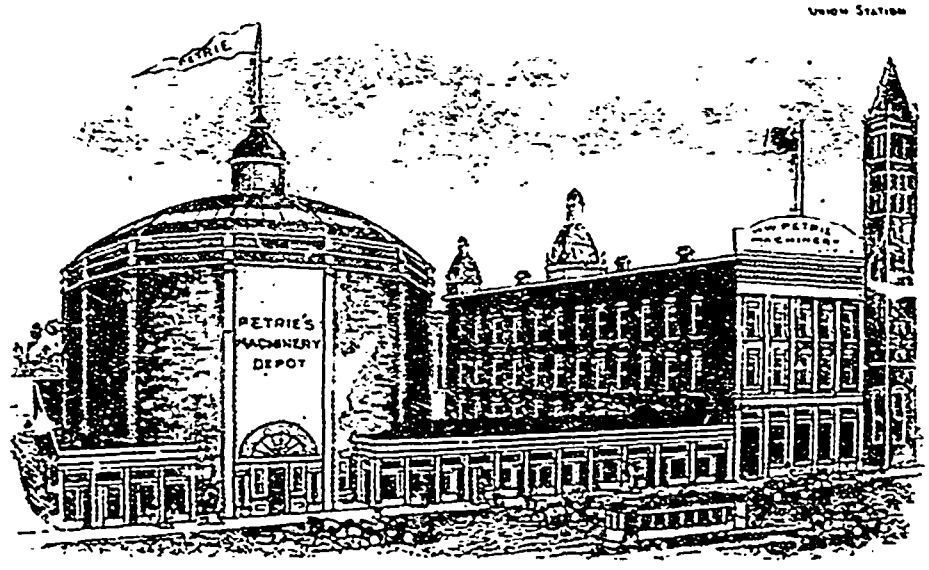
This brings me to the consideration of "Mutual Policy Contracts." How to make them mutual is the question- how to bring each policy holder in on an exact level, and do justice and be fair to all.

To my mind, the most important question, and the one always before me, is the question of the relation of the amount of insurance carried to value of the property protected.

RELATION OF INSURANCE TO VALUE.

Having the best possible plan of the risk and its exposures and the most thorough knowledge of the private and public protection and of the care the business receives from the managers, neither myself nor any other who has to pass on the rate can know if it is adequate unless they know the relation of insurance to value.

If they know the insurance is 20 per cent. of value at the time the policy is issued, or 40 per cent., or 60 per cent., or 80 per cent., they may fix an adequate rate, based on the fact that a 20 per cent., or 40 per cent., or 60 per cent. or 80 per cent. loss on the property will be a total loss to the company.



H. W. PETRIE'S MACHINERY DEPOT—VIEW FROM FRONT STREET.

As a suggestion how the rates be graduated:

If 80 per cent. insurance to value is carried, 1¼ per cent. may be adequate.

If 60 per cent. insurance to value is carried, 1½ per cent. may be adequate.

If 40 per cent. insurance to value is carried, 1¾ per cent. may be adequate.

If 20 per cent. insurance to value is carried, 2 per cent. may be adequate.

Having decided on the rate that is adequate, considering that a certain percentage of insurance is in force at the time of the issue of the policy, it is necessary, if the rate is to continue fair and equitable to all, that the per-

ce ge of insurance to value must continue during th de of the policy.

An illustration: If a $20,000 stock of lumber is in- d for $12,000 (60 per cent. of value) at a fair rate of ½ per cent., and the stock of lumber is increased to ,000, so that the $12,000 insurance is only 40 per of value, the rate of 1½ per cent. at once becomes in equate, and should be raised to 1¾ per cent.

As it is manifestly impossible for the insurance com- s to know of these changes of value of stock, the on equitable way as between policy holders to carry th isk is to require the assured to guarantee a certain pe entage of insurance to value. It will make no di ence what percentage of value you fix upon, so le as all policy holders insure to same percentage of va e.

Suppose a value of $20,000 is to be protected.

If all insure for 20 per cent. of value on $4,000 at 2 per cent., $80 premium.

If all insure for ,0 per cent. of value on $8,000 at 1¾ per cent., $140 premium.

If all insure for 60 per cent. of value on $12,000 at 1½ per cent., $180 premium.

If all insure for 80 per cent. of value on $16,000 at 1¾ per cent., $200 premium.

All paying in the same premium for protection to the same percentage of value of property, the business becomes mutual in fact as well as in name.

But now suppose one policy holder carries $16,000 insurance at 1¾ per cent. and pays $200; another carries $4,000 insurance at 2 per cent. and pays $80. Suppose a $4,000 fire in each case. One man has paid in $200 premium and receives $4,000. The other man has paid in even at the higher rate only $80 premium, and he also receives $4,000. Notwithstanding the difference in rate charged, the man who has paid in only $80 premium, receives just as much on the loss as the man who paid in two and one-half times as much. This is not mutual insurance. Much less is it mutual insurance where the assured is allowed to carry any percentage of insurance to value he pleases, all at the same rate.

Now if it is necessary in doing a mutual business, and so that we may decide on a fair comparative rate that all policy holders should carry the same percentage of insurance to value, what percentage shall we ask for.

We find an 80 per cent. coinsurance clause in almost universal use. Why not insist on that as our basis for all rates on all risks under fire department protection?

The Lumber Mutual has been working on that basis for a large majority of its risks, and its regular loss ratio to premiums varying not over 4 per cent. in any one year with another I attribute to the incorporation of this correct principle of underwriting in its policies. We would like to persuade all other companies doing the same buisiness to adopt the same plans and save much unnecessary work and correspondence with the policy holders and between the companies.

The equity of the 80 per cent. coinsurance clause is so true that it does equal and exact justice between the policy holder who carries insurance to 80 per cent. of value and one who carries insurance to only 20 per cent. of value.

To illustrate: On $10,000 to be protected and rate of 2 per cent., one policy holder carries $8,000 at 2 per cent., and pays $160; another policy holder carries $2,000 at 2 per cent., and pays $40. The latter coinsures and himself carries $6,000 at 2 per cent., saving $120. Under a loss of $1,000 on first yard, the owner being insured to 80 per cent. of value, receives his full $1,000 loss. The other party being insured to only one-quarter of 80 per cent. of value, or $2,000, and coinsuring himself for $6,000, receives from the companies one-quarter part of $1,000, or $250, and pays himself three-quarter part of $1,000, or $750.

You will notice he paid $40 premium and receives $250, while the other party paid four times as much premium, or $160, and receives four times as much loss, or $1,000. This is equitable and mutual insurance.

The fact of an 80 per cent. coinsurance clause in policies will not prevent the policy holder carrying more or less than 80 per cent. of value in his policies, as he elects. I am not, however, in favor of allowing any reduction of rate for insurance above 80 per cent. I believe if the owner has a chance to stand part of his loss the risk will be better cared for.

Many do not understand exactly how the 80 per cent. coinsurance clause works, but many more do, and some write us as follows: "We will not entertain such a proposition on our lumber because the fluctuations are so wide and so rapid."

How can we name a fair rate to a party who knows the conditions of his risk are subject to such "wide and rapid" changes? He wants the insurance company, which knows nothing about these changes, to take all the chances on them. We respectfully decline to carry such risks without coinsurance.

Another party a few days since proposed to us to pay a $2.40 rate for $10,000 insurance on $50,000 value, because, as they said, $10,000 was all they were likely to lose. That we declined, because a 20 per cent. loss on any part of the risk meant a total loss to the company.

Before the days when coinsurance was so nearly universal as now, I well remember having insurance to about $5,000 to $8,000 on my $20,000 to $25,000 value of stock, and special agents ordering my insurance cancelled because I carried so small a percentage of insurance to value.

Outside of the fire department or adequate private protection the condition is different, especially as to mills whose life depends on the owner's care.

It is not safe business if the owner be permitted to carry insurance to full value. He might lose all interest to protect the plant. The surest way to interest him in event of a loss is to attach a three-quarter cash value clause to his policies.

This limits the assured's collection to 75 per cent. of the actual cash value at time of fire, leaving the owners to lose 25 per cent. of such loss and damage, if total. This fixes in the owner's mind the financial necessity to him to use every means in his power to protect the property.

These two principles—of 80 per cent. coinsurance on protected property; 75 per cent. cash value clause on unprotected property—is the keystone of the arch on which the Lumber Mutual is being built up. The companies adopting these principles are the surest to succeed, are the fairest to the assured, and are mutual.

With these two questions of policy disposed of, we may construct the forms of contract and lay down the principle:

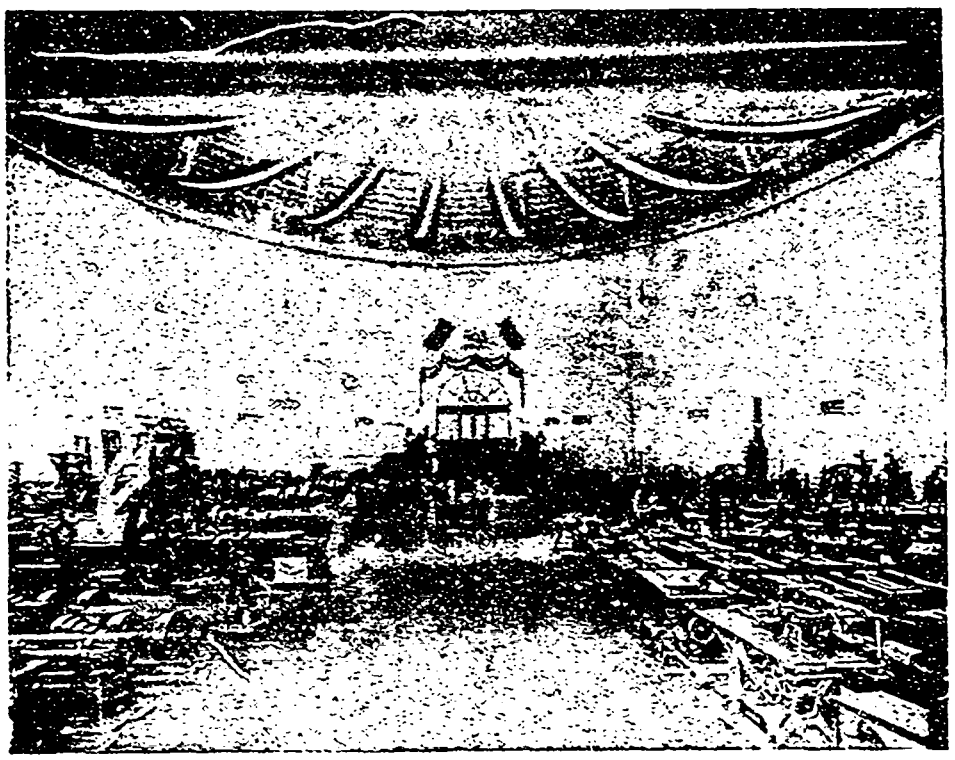
(1st) Each building and all other articles of fixed or unchanging values shall be specifically insured to not over 80 per cent. of owner's valuation.

(2nd) For the convenience of the assured and to protect him better, his stock in trade should be blanketed in all sheds and in yard. The blanket policy floats over and protects the assured against his every change in value of stock in each shed or location. Any yard may have a shed containing to-day $2,000 worth of stock, insured for $2,000. In a week hence additions to value may make stock in same shed worth $5,000.

If the lumber in this shed is specifically insured, the owner one week has 100 per cent. insurance to value and the next week only 40 per cent. of value. While the value in this one shed is increasing, that in another may be decreasing, so that if both are specifically insured the changing values of stock may make the insurance in one case be only 40 per cent. of value and in another 200 per cent. of value.

In one case in event of fire the assured collects only 40 per cent. of his loss. In the other case he collects his loss, but only gets one-half what he paid for.

A blanket form covering stock in all buildings and in yard and on cars, while at assured's risk, is but justice to the assured, and let it float over and protect the whole property.



INTERIOR VIEW OF H. W. PETRIE'S NEW MACHINERY DEPOT.

INSURANCE ON LUMBER AT MILLS OR POINT OF MANUFACTURE.

The condition under each insurance of this kind must be taken very much as the mills themselves. Some have protection and some none; some forest exposure and some none; some railroad exposure and some none; some with varying clear spaces from mill and some none. Some are piled in one block and some in six blocks, separated by anywhere from 100 feet to one-fourth mile, and if we insure these all at the prevailing rate we have nothing mutual about it. Each risk must be separately and specifically rated.

Until this can be done we are taking these risks at the best obtainable rate, but always inserting a "Location Clause," so called, to prevent our getting caught, as once at a mill in Maine, where by insuring for $10,000 covering lumber "stuck along switch tracks," we found, on investigation, the switch tracks about two and one-half miles long and five separate and distinct yards, with over one-fourth mile between and about $10,000 value in each yard.

By insuring for $10,000, $50,000 value of lumber was fully protected. Our friends were pratically insuring five risks for one premuim.

One enterprising manufacturer I heard of, from Wisconsin, I beleive, laid his seasoning yard out with 300 feet clear space down the centre, and with separate locations for storage of lumber each side, and 200 feet clear space between each location.

Then by sticking up about $25,000 worth in each location, and having eight separate locations, separated one way by 300 feet space and the other way by 200 feet space, had the whole so nicely arranged he wanted to insure for $25,000 only on a blanket form at a flat rate and protect himself fully, while the insuring company carries eight separate risks of $25,000 each — $200,000 in all for one premuim on $25,000.

Nice little scheme, wasn't it, particularly if he could succeed in working it on a mutual company and save 20 or 30 per cent. dividends besides?

WOOD PULP DEPARTMENT

THE SCANDINAVIAN PULP MARKET.

Mr. C. E. Sontum, Canadian Government Commissioner for Norway and Sweden, says regarding the pulp market: "The bad collapse of the market for mechanical wood pulp, after a protracted period of shortage of production, strongly points to a considerable overproduction, and as the bids now coming to hand are even kroners below the cost price, the Norwegian pulp-makers fully acknowledge the desirability of, or rather the necessity for a large restriction of the output. The management committee of the Norwegian Wood-Pulp Association is in active correspondence with the Swedish section on this question, and it is to be hoped that at the general meeting of both sections to be held in the near future an agreement may be arrived at."

DUTY ON ROSSED PULP WOOD.

A final decision has apparently not yet been reached by the United States authorities concerning a duty on rossed pulp wood. As stated in last issue, the Treasury Department decided that a duty of 35 per cent. ad valorem should be levied on rossed and shaved pulp wood imported from Canada. Many manufacturers of pulp and paper protested against the assessment of the duty and demanded an investigation. A hearing was to have been held on June 29th, and meanwhile the order was rescinded. The hearing, however, was postponed, and it is said that it will take place about the 1st of August.

The fact that the Treasury Department concluded to revoke the action, temporarily at least, is regarded as paramount to an admission that the duty should not have been levied, and the interests concerned believe that the final outcome will be the rescinding of the regulation.

THE PULP INDUSTRY IN NEWFOUNDLAND.

It is predicted that the recent purchase by Harmsworth Bros., of London, Eng., of extensive timber lands in Newfoundland for pulp purposes will mark the beginning of an important industry in that colony. Much of the spruce timber is what is designated "black spruce," which is said to produce "without exception he best and strongest pulp fibre of any wood in Europe or in the Northern States of America." Again, Newfoundland is rich in sulphur, which is found in the form of iron pyrites, frequent y yielding 50 per cent. of pure sulphur. The water powers which the country possesses are of great power and extent. In many respects, indeed, Newfoundland presents itself as an almost ideal source of pulp and paper supply.

The state of the law in Newfoundland until a year or two back had a good deal to do with the comparative backwardness of that colony in the exploitation of its timber resources. Up to 1899 the payment of an initial bounty of $25 per mile entitled a lessee to a lease for twenty-one years, which was renewable. In that year, however, a new law came into force, under which the first bounty payable was one of five dollars per mile, whereupon a lease issues for ninety-nine years, subject only to an annual rental of three dollars per mile and to some other conditions by no means so burdensome as the other ones were.

POSSIBILITIES OF THE PULP INDUSTRY.

On several occasions we have been asked, apparently by persons looking for a field for the investment of capital, to give our views as to the prospects for pulp mills in Canada. A late communication asks whether there is a demand for all the pulp that is now produced in Canada.

It is impossible to answer these questions with any degree of certainty. The pulp business will probably be found to be profitable only to the extent of the prosperity of the country at large. Should there be a reversal in the near future to a period of depression, it is unlikely that the pulp industry would continue prosperous while other branches of trade were in an unhealthy condition. Other things being equal, however, it would seem that the pulp industry offers fair possibilities for the investment of capital.

The increase in the production of pulp that has taken place within the past few years will needs be reckoned with. Many new mills have been built, while others are in course of construction, some of them of large capacity. When these are in operation the production will have been greatly increased. The consumption of paper is growing very rapidly, and the market has up to the present time been able to consume the increased production of pulp. Whether this will be the case in the future remains to be seen.

Pulp mills that are favorably situated for export trade should be found paying investments, providing they are properly designed and so located as to obtain a supply of pulp wood at reasonable cost. Too many mills have been built in Canada without the employment of a first-class designing expert, and the results tell their own story.

The appreciation which has taken place in the value of spruce and other kinds of timber has not been reflected in the price of paper. If the cost of pulp wood is to continue to advance, manufacturers of pulp may probably find that it will be necessary to advance the price of pulp in order to realize a fair margin of profit on the capital invested.

The position of the pulp industry of this country would doubtless be improved if the laws entirely prohibited the export of pulp wood. The situation at present permits the export of pulp wood from the provinces of Quebec, New Brunswick and Nova Scotia, while exports of pulp to the United States are subjected to a duty. The natural inclination, therefore, is to import the pulp wood rather than the pulp.

PROCESS OF MAKING WOOD PULP.

Among the patents recently issued is one to Viggo Drewsen, of New York, for a new process of making wood pulp. "It is known to those skilled in the art," says Mr. Drewsen, "that when wood is cooked in the bisulphite liquor the liquor must penetrate the wood thoroughly before the temperature of the contents of the digester is raised above the boiling point of water. If the wood chips are not thoroughly permeated by the liquor, the sulphurous gas and the steam in the digester will cause the incrusting or non fibrous material to turn brown, and thus produce spots in the pulp. The object of my invention is to cure this defect.

"The ideal method would be to exhaust the air from the digester containing the wood and then force the cooking liquor into the wood under pressure before the steam is admitted to the contents of the digester; but this method of producing the vacuum and the use of pressure is too expensive for practical use. I have found that practically the same result can be obtained if the wood chips are dipped into a suitable liquor at ordinary temperatures and stored in the bins before the wood is introduced into the digester. It would not be practical, however, to use the ordinary bisulphite of lime liquor for this purpose, because the odor of the sulphurous acid is too strong and offensive and because the acid liquor destroys the material of which the bins are composed.

"My invention consists in the discovery that I can obtain the desired result by soaking the wood chips prior to their introduction into the digester and the ordinary cooking liquor in a solution of a monosulphite which is soluble in water, such as $Na_2SO_3MgSO_3$, etc. The water solution of the monosulphite is neutral, or slightly alkaline, has no odor, and does not attack the material composing the bins. The strength of the solution may, of course, be varied, but I have found that a solution of four parts of sodium sulphite (Na_2SO_37aq) to one hundred parts of water is efficient."

The Barkley Sound Pulp Company, Limited, has been incorporated by the British Columbia Government, with a capital of $100,000.

The decision of the Scandinavian Wood Pulp Association to restrict the output of mechanical has not so far had the desired effect of raising prices, says Pulp and Paper, of London, Eng., as at present moist pine can be freely bought at 36s. c.i.f., and a fair amount of business is being transacted. Although the makers of sulphite pulp are fairly firm in their quotations of £7 5s c.i.f. for strong and £7 15s c.i.f. for bleaching qualities, we still hear of parcels being disposed of at less, particularly for delivery this year, although for next year prices are decidedly firmer. The stocks of soda pulp evidently still remain large, as both for prompt and forward low prices are accepted, viz., £6 15s to £6 17s 6d. c. i. f.

PULP NOTES.

The death is announced, in London, England, of E. A. Bremner, who organized the Sturgeon Falls Pulp Company.

The Bowdoin Paper Company, of Topsham, Me., have lately received a large quantity of pulp wood from Nova Scotia.

The Canada Paper Company have completed their paper mill at Windsor Mills, Que., and are about to build a new pulp mill.

E. B. Hickman & Sons, of Westchester, Pa., have a contract to take out a large quantity of poplar wood, which will be shipped to Philadelphia for making pulp.

The Laurentide Pulp Company has made application to have its name changed to the Laurentide Paper Company, Limited, and for power to increase its capital to $2,800,000.

According to the annual report, the Quebec and Lake St. John Railway Company carried in one year 2,256 cars of pulp wood and 555 cars of pulp and paper, out of a total of 12,319 cars of freight.

The Sault Ste. Marie Pulp & Paper Company is installing a fifteen ton paper plant in its power house building on the American side. The pulp for the mill will be taken from the company's plant in the Canadian Soo.

A dispatch from Victoria, B. C., says that Benton E. Turner, a New York capitalist, is about to erect a pulp mill at the mouth of the Powell river, having secured 250 square miles of spruce timber lands located along the coast.

The William Hamilton Manufacturing Company, of Peterborough, Ont., are supplying water wheels and other machinery for the large addition now being made to the pulp mill of the Chicoutimi Pulp Company at Chicoutimi, Que.

It is expected that the large pulp mill of the North Shore Power, Railway & Navigation Company at Seven Islands, Que., will be completed for operations next year. The capacity of the mill will be about 250 tons of pulp per day

The Cushing Sulphite Fibre Company, of St. John, N. B., last month elected the following officers: President, Captain Partingdon; vice-president, Thomas McAvity; secretary and treasurer, H. W. Schofield; manager, James Beverley.

It is now definitely known that the new mill under construction at the Chaudiere by J. R. Booth, of Ottawa, is to be a pulp mill. It will have fifteen grinders and fifteen water wheels. It is said that Mr. Booth will build a paper mill also.

The Nova Scotia Wood Pulp & Paper Company, of Mill Village, N. S., are just completing a ground pulp mill to replace the one burned last spring. It is equipped with four New England grinders and will have a capacity of 40 tons per day.

The Jenckes Machine Company, of Sherbrooke, Que., have installed three new water wheels for the Montrose Paper Mills at Thorold, Ont. The wheels are of the Croker patent, set in a horizontal cylindrical steel case 17½ feet long x 10 feet in diameter.

A sale was held in Quebec City a few days ago of a shipment of 2,636 bales of pulp landed in a damaged condition from the steamship Protector, which was stranded on Bar Reef at the mouth of the Saugenay River. It was bought in by J. McNaughton, of Quebec, at twenty-five cents a bale.

According to a dispatch from H. M. Consul at Stettin, a British firm is now erecting at Sydowsan, near Stettin, a factory for the production of artificial silk from wood pulp by a new process. The pulp is treated with chemicals, pressed by hydraulic power through minute tubes into a further chemical bath, after which the finished product is spun. It can be woven into any desired fabric, which is said to be equal to fine silk.

THE NEWS

—W. A. Smith has opened a lumber yard at Lumsden, N. W. T.

—C. W. Milestone has recently established a lumber yard at Moose Jaw, N. W. T.

—Campbell & Ferguson, Limited, have been incorporated at Melita, Man., to deal in lumber.

—A post office has been opened at Sandilands, Man., where Reimer Bros. have their saw mill.

—Turnbull & McManus, sash and door manufacturers, Winnipeg, are building a new warehouse.

—J. G. Hutchinson has sold out his interest in the Canada Lumber Company, Vancouver, B. C.

—The Prairie Lumber Company has purchased the lumber yard of Klasson & Wiede at Altona, Man.

—The Imperial Elevator Company will establish lumber yards at Napinka, Medora and Waskada, Man.

—B. J. Gilligan is erecting a saw mill at Mattawa, Ont., for the purpose of sawing pine and hardwoods.

—The Schevlin & Carpenter Lumber Company have purchased a site and will build a saw mill at Rainy River, Ont.

—Vigars & Company are rebuilding their planing mill at Port Arthur, Ont., which was destroyed by fire last month.

—The Champoux Company has been incorporated at D'Israeli, Que., with a capital of $96,000, to manufacture lumbber, etc.

—The Hunting-Lea Lumber Company, Limited, has been incorporated by the British Columbia Government, with a capital of $20,000.

—The Cushing Bros., Limited, with a capital of $200,000, have filed articles of incoporation, with head office at Calgary, N. W. T.

—The G. B. Housser Lumber Company, Limited, has been incorporated to do business at Portage la Prairie and other places in Manitoba.

—Incorporation has been granted to the Northwest Lumber & Commission Company, Limited, of Winnipeg, to manufacture and deal in lumber, saw logs and pulp wood.

—John McLennan, late of Syracuse, N. Y., has established a new business in Quebec, the purpose of which is to bring together people interested in Canadian timber.

—It is rumored that timber lands comprising 12,000 acres have been purchased by R. H. Pope, member for Compton, Que., on behalf of a syndicate of New York capitalists.

—The Canadian Wood Manufacturing Company expect to have their new factory at Farnham, Que., completed at a very early date. The superintendent of the company is Grant Morden.

—The great spruce forests of nothern Canada, if placed upon the territory of the United States, would extend from Lake Erie to Georgia and from Maine to California, says an American statistician.

—A. J. Burton, of Parry Sound, has written to the city council of Vancouver, B. C., to learn what inducements would be offered for the establishment in that city of a manufactory of saw milling machinery.

—The British Columbia Government has rescinded the Order-in-Council passed last month providing that all timber limits must be surveyed before the issue of special licenses to cut and remove timber therefrom.

—The saw mill at Tobique, N.B., recently acquired by Donald Fraser & Sons from the Tobique Manufacturing Company, is running at full blast, the crew numbering 150. The average output of the mill is 150,000 feet daily.

—Investigation has been made into some fires in the timber limits of Tait & Turnbull, near Huntsville, Ont. As a result a man named Miles is charged with having set fire to the firm's lumber camp and is now held for trial.

—The Elgin Milling Company is seeking incorporation, to engage in the manufacture of lumber and woodenware at Elgin, N. B. Henry R. Emerson, of Dorchester, and David T. Lutwick, of Alma, N. B., are interested.

—The Brotherhood of Carpenters and Joiners of America have organized the Montreal Co-operative Society for the manufacturing of doors, sashes and mouldings. It is a society of working men and is to have a capital of $20,000.

—James and Arthur Moore, Melbourne, Australia, were recent visitors to Canada. They are extensive dealers in lumber and buy a quantity each year from St. John firms. They left for Europe, where they will visit the lumber ports of Norway and Sweden.

—A new company has been formed in Ottawa under the name of the Gulline Manufacturing Company, Limited, to acquire the business of H. L. Gulline, manufacturer of horse collars and other articles of leather. Those interested include David McLaren and E. C. Whitney, lumbermen.

—W. A. Farnham will manage the new saw mill now building at Kingsport, N. S. It will be 100 x 50 feet, with two wings 65 x 25 feet. The lower storey will contain an 80 horse power engine, purchased from the Burrill-Johnson Iron Company, of Yarmouth. The second storey will be equipped with a large rotary saw, moulders, matchers, edgers and lath machines.

—The Red Deer Lumber Company, of Red Deer, N. W. T., was recently organized by United States capitalists, including O. A. Robertson, F. B. Lynch and J. C. Wood, of St. Paul, and C. A. Chambers, of Minneapolis. Large areas of timber lands were purchased in the Saskatchewan district, where an immense saw mill is under construction, and recently heavy purchases have been made of timber limits in British Columbia. The solicitors for the company are Hough & Campbell, of Winnipeg.

—C. T. W. Piper, of Vancouver, B. C., has patented a logging machine which does away entirely with the snatch block. The haul-back rope is conducted over a loose pulley acting in conjunction with a combination of loose rollers, fixed at any required angle and so arranged that the haul-back rope and the fall or main rope are kept perfectly clear of each other. According to the nature of the ground the machine is then fixed at the required angle so that logs can be hauled up and down the side of the mountain with perfect ease.

—An unusual accident occurred in a lumber camp operated by N. Moran at Thunder Bay, B. C. The last part of the log haul from the woods is down a steep bridge. It is the practice, in order to hold back the logs, to cover the timbers of the skid-road with sand. On this particular occasion the logs were slippery and the sand did not have its usual retarding effect. The logs began to slide down the hill and before the bottom of the grade was reached had run through the double line of horses and on down the hill. One horse was killed outright, while two others were badly injured.

—W. H. McAuliffe's new planing mill at the Chaudiere, Ottawa, will be running shortly. The mill is a solid brick, two storey structure. Clear of posts the dimensions are one hundred feet by forty feet. On the first floor will be the matchers, resawing, ripping and moulding machines. The second floor will be fitted up as a machine shop. Alongside the mill sorting platforms and sheds are being built to facilitate the handling of the lumber. The mill is situated on the Canada Atlantic Ry. near Mr. McAuliffe's Ottawa yard.

CASUALTIES.

—John Reynolds, who worked at the Hastings camp, at Bear River, B.C., was killed by a falling tree.

—H. Williams, an employee of Chew Bros., Midland, Ont., fell across a saw table in the mill and was instantly killed.

—Carl Courser, an employee of the Hastings saw mill at Vancouver, B. C., fell across a circular saw and was instantly killed.

—W. J. Scott, lumberman, of Springhill, N. B., had one of the bones in his right ankle broken recently and was laid up for some time.

—Two cases of slipping off a log to death occurred at Enderby, B. C., last month, the victims being Stewart James and Arthur Wavy, employed at the saw mill there.

—A young lad of 16 years of age, named Percy Young, had one of his arms torn from its socket by being caught in the machinery in the St. Maurice Lumber Company's mill at Three Rivers, Que.

—William Tucker, for three years employed as logger by the Victoria Lumber Company, Chemainus, B. C., was instantly killed by a logging engine on the track of the new line leading from Ladysmith harbor.

—Bruce Carmichael had both legs broken in one of the logging camps of the Chemainus Lumber Company near Nanaimo, B. C., on July 15th. He was attending to an endless rope when the cable broke, striking him with such force as to break both legs below the knees.

GERMAN METHOD OF DRYING WOOD.

It is generally supposed that wood which has been for some length of time in a drying room, exposed to a heat of from 50° to 60° C. (122° to 140° F.), is perfectly dry and fit for use without there being any fear that it will shrink, split, or bend ; but this supposition is not always correct, as even an expert woodworker may be mistaken as to whether it is perfectly dry or not, unless he knows the exact treatment the wood has received from the time when it was felled in the forest until it left the drying room.

So far it is little known, writes Mr. O. J.D. Hughes, United States Consul at Coburg, that wood which has been floated in rafts or otherwise gives a more reliable joinery and building material than that which has been carried by cart or rail to the sawmill and workshop. While the wood is lying in the water its sap and albuminous and salty substances are—owing to the diffusing effect exercised by the water—dissolved and come out of the pores, the water taking their places. This dissolving process, quite similar to that which takes place during the manufacture of sugar out of cane or beets, will progress more slowly at the ordinary temperature of river water—i.e., at from 12 to 18° C. (52° to 65° F.)—than it would at a higher temperature, but the length of time rafts in Germany usually spend on their journey down rivers is entirely sufficient for this process to take place, even at an unfavorable temperature.

The salty and other substances in the wood, like albumen and wood gum, are hygroscopic —i. e., they eagerly absorb the dampness in the atmosphere, so that apparently wood which has been kept in dry drying rooms for a sufficient length of time is apt to become damp again in the open air unless it has, when floating down the river, gone through the above-mentioned diffusing or washing-out process.

With the better qualities of wood a secretion of the hygroscopic substances is brought about artificially in our local drying establishments with the help of a special apparatus. The boards or planks are piled up in a long iron box, with narrow spaces between ; the lid is then tightly screwed down, so that neither water nor steam can escape. Steam is then turned into the box at a continuous pressure of 0.2 or 0.3 atmospheres, and this process is continued for from sixty to seventy-two hours, the exact length of time being determined by the hardness and density of the wood. The steam opens up the wood and kills the protoplasm which is still alive in the cells. After having been thus prepared the wood goes into the water bath, where it is kept for about a fortnight.

The drying process, as practiced here, is about as follows : The boards are loaded on a small cart, leaving small spaces between them by placing narrow strips in position. The cart is then pushed into the first drying room. The size of these rooms differs a good deal ; they are mostly from 20 to 30 meters (66.45 to 84.-25 feet) long, with breadth and height to correspond. The temperature is kept between 50° and 60° C. (122° and 140° F.). Steam or hot-water pipes, placed on one side and underneath the flooring, supply the necessary heat, fresh air being admitted from one side by openings which can be wholly or partially closed by means of slides. At times, when the fresh air does not enter fast enough, exhausters and ventilators are employed. The air, after becoming heated and passing between the layers of wood, becomes saturated with its moisture and is then forced out at the other side of the room by numerous openings or a long slit connected with the outer air by openings leading to the roof.

In most establishments the wood, after having been in the first heating room for a sufficient length of time, is taken right into the workshop. This, however, is not the best method; it is better to have the first drying process followed by a second one in another drying room, which is heated by means of a stove extending its whole breadth, provided with fuel—usually coke—from the outside. The process is then about the following : Each board or plank that comes from drying room No. 1 is given an exact rectangular shape at one end ; it is then loaded on a cart and put into the second drying room, after which the door is closed and any loose places that may become noticeable are filled up with mortar. The fire is then started and brought to a red heat, plenty of air being allowed to pass over the fuel, while the smoke is carried off by regulating outlets, which are provided underneath and beside the cart. After from fifty to sixty hours the cart is taken out and each piece of wood carefully examined as to whether it has kept the exact rectangular shape with which it was provided before being put into the heating room. Those pieces which have kept their shape may be considered as quite dry and ready for use, while the others will be once more cut rectangular at one end and put again into heating room No. 2. On being withdrawn, after about twelve or eighteen hours, every angle is as it should be — consequently, quite dry and in perfect condition for use. Many manufacturers are afraid of the expense and loss of time in connection with this double-drying process as described above, and so they use wood which has been less carefully treated. The natural consequence of this omission is that furniture, etc., manufactured by them will split or bend very soon after having been put to use.

Finally, it must not be forgotten that wood which before being dried has been floated, and thus gone through the wash-out (Auslaugung) process referred to at the beginning of this article, makes very useful timber, as it is less liable than nonfloated wood to be attacked by micro-organisms, the reason for this being that the washed-out wood consists almost exclusively of cellulose and liquose, on neither of which do mold nor bacteriæ thrive. Such timber will require but a slight saturation with an antiseptic solution to become safe from putrefaction and destruction through fungi.

BELTING FOR LUMBERMEN.

The Rossendale Belting Company, Limited, of Manchester, England, have opened a branch at Toronto for the sale of their belting and accessories. In conversation with the manager he said : "We are the only firm of British belt manufacturers having a branch in the Dominion dealing direct with the consumer.

The "Rossendale Hair" belting is specially adapted for the use of lumbermen, in saw or planing mills, and will work under water or in damp or exposed places, in all conditions of weather.

They also carry a stock of the famous "M. A. Y." and "Mayave" belting—the latter a belt made of specially prepared canvas, gutta percha and balata, which, though considerably cheaper, the company guarantee to work satisfactorily on any drive upon which a balata belt has previously given satisfaction.

A 5-inch M. A. Y. solid woven belt ¼ inch thick was tested recently at Walker University, Liverpool, and its breaking load was 12,300 lbs.

The Dominion Exhibition to be held in Toronto from Aug. 27th to Sept. 12th, will be under the direct recognition of the King, the Queen, the Governor-General, the Dominion Parliament, the various provincial governments, and the city and corporation of Toronto.

LEGAL DECISIONS.

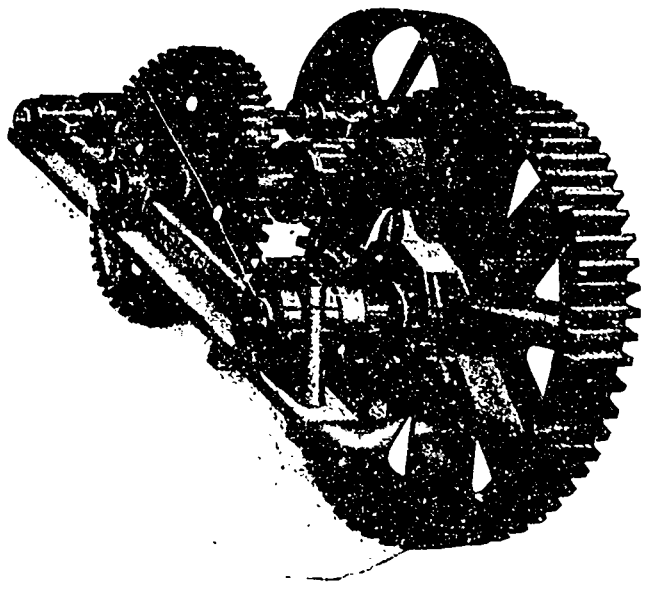
McMILLAN v. ORILLIA EXPORT LUMBER CO.

This case was heard in the Trial Court at Osgoode Hall, Toronto. Judgment in action and counterclaim tried at Sault Ste. Marie. After hearing the evidence the learned judge dismissed the counterclaim and all of the plaintiff's claim, except his claim of $184.93, being a sum of money owing by defendants to one James Hurdle, which plaintiff alleged had been assigned to him, as to which judgment was reserved. The facts with regard to it were as follows:—One Hollway was an inspector and salesman for defendants, and before 22nd July, 1902, he had purchased from Hurdle a quantity of timber for defendants, and they were indebted to Hurdle in $184.93 for it. On 22nd July, 1902, Hurdle made out his account against defendants in detail, and at the foot of it signed an ordered, addressed to defendants, "Pay to order of J. W. McMillan (plaintiff), above amount, $184.93." Plaintiff, a few days afterwards, drew on defendants for the full amount of his claim in the present action, $541.46, including the Hurdle claim. This draft was presented to defendants on 1st August, 1902, and they wrote on the same day to plaintiff to say that they could not reconcile the amount with their figures, and to ask for a detailed statement. The plaintiff sent defendants a statement, part of it being "To amount of Jas. Hurdle, order for lumber bought by Hollway, $184.93." The statement was endorsed in a letter to defendants, dated 7th August, 1902, in which plaintiff said:—"I attached a copy of account to draft and also an order which I had from Jas. Hurdle, from whom Mr. Hollway bought oak lumber to the amount of order given me." It appeared from the detailed account of Hurdle against defendants that only $124.80 of the amount was for oak lumber, the balance being for basswood lumber. Held on the evidence, that if Hurdle's order was ever attached to the draft on defendants, it was not so attached at presentation, and the only notice to defendants of its existence was the mention of it in the account which defendants received from plaintiff in the letter of 7th August, and the reference to it in that letter. The order amounts to an equitable assignment of Hurdle's claim against defendants; Hall v. Prittie, 17 A. R. 306, but plaintiff did not before action give express notice in writing to defendants, so as to give himself the right to sue without joining Hurdle as a party. To enable the assignee to sue alone, the notice must be express notice, and it must be in writing; there should be nothing equivocal about it, nothing to leave the debtor in doubt as to whether the whole or only a part of it had been absolutely assigned. Therefore, this part of the action must also be dismissed, but without prejudice to the right of plaintiff to bring another action to recover the amount. Two actions were brought upon the different causes of action which were considered at the trial and in the present judgment. These actions were both begun in the District Court of Manitoulin. After issue joined they were consolidated by order, and removed into the High Court, and directed to be tried at Sault Ste. Marie, defendants agreeing to pay the additional witness fees incurred by change of venue from Gore Bay. One of the actions related only to the Hurdle debt. Defendants should recover their costs of defence as if the only action had been one upon the Hurdle claim, and these costs should be taxed on the District Court scale. The costs of the motion to consolidate, etc., should be taxed to them on the High Court scale. Their witness fees should be no greater than if the action had been tried at Gore Bay, and plaintiff may set off the amount of the increased expense of taking his witnesses to Sault Ste. Marie. No order as to the costs of the other causes of action or the counterclaim.

A British Columbia charter has been granted to the Port Renfrew Lumber Company, Limited, the China Creek Lumber Company, Limited, and the Big Bend Lumber Company, Limited.

According to a report from North Bay, the Canadian militia is soon to be augmented by a new regiment recruited from among the hardy river drivers and lumbermen of the North Bay and Parry Sound district. It is expected that an official announcement of the formation of the new corps will shortly be made.

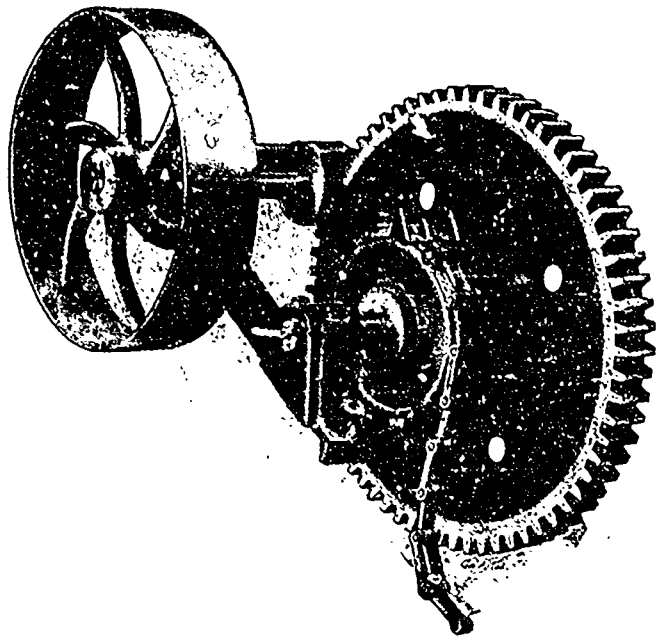
ENDLESS CHAIN BULL-WHEELS OR LOG JACKS



WATEROUS NO. 0 DOUBLE-GEARED LOG JACK

With spur gear to drive from shaft running across mill.

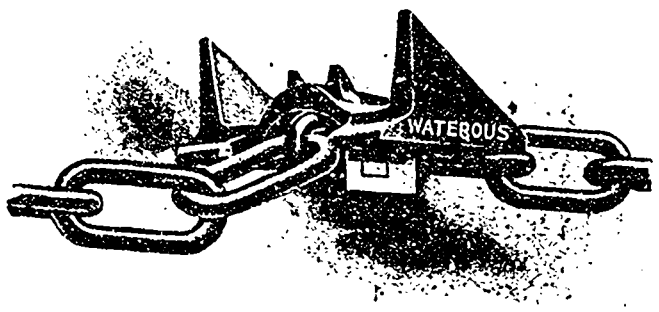
When needed to drive from shaft running lengthwise of mill, we replace smaller spur gears with bevel gears or frictions placed outside of iron frame.



WATEROUS NO. 1 SINGLE-GEARED LOG JACK

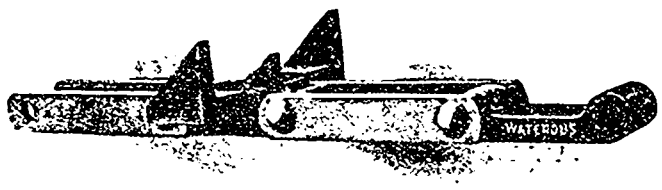
With No. 86 log chain. Cast steel spurs and centre links, steel side links, 6" pitch. No. 80 log chain is the same style but heavier with drop forged center links, 8" pitch.

PULLEYS CAN BE READILY REPLACED BY STRAIGHT FACE FRICTIONS.



Cable Chain with Cast Iron Log Spurs

Chilled wearing shoes 4x12" on each side round link. Made 10", 12", 14" wide for 1", 1¼" and 1½" chain. Can't turn on chain.



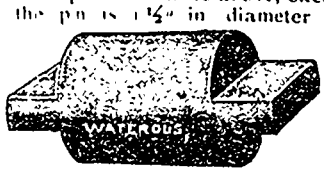
No. 86 Steel Chain (Cast Steel Log Spurs).

Rivets ¾", side bars 1¼x⅝", 8" pitch, center (cast steel) 2¼x6" pitch. Spurs 9" point to point.

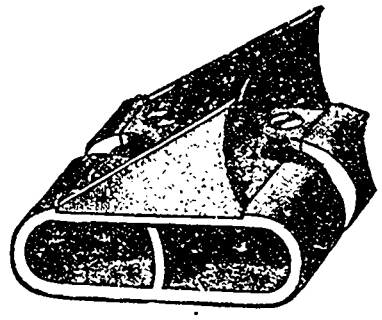
No. 80 Steel Chain

Is 8" pitch similar to above, except that solid link is a drop steel forging, the pin is 1½" in diameter (like illustration) and is fixed in position connecting side bars, presenting a large wearing surface for solid link. Side bars 2x1½'

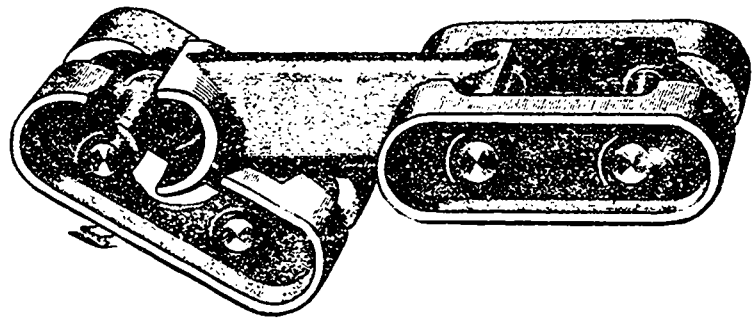
Taking a safety of 4½" this chain gives a 10,000 lbs. working strain. Log spurs same as No. 86 or of heavy forged steel, any spread desired.



PIN OF NO. 80 CHAIN.



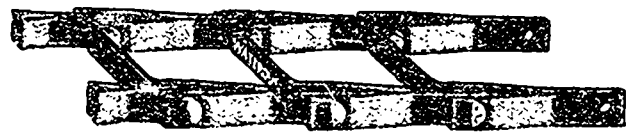
Malleable Log Chains—Detachable, readily applied.



No. 1050 and 1075—Giant Chains, Detachable.

Not recommended for salt water—but there is no better chain for fresh water.

Forged Refuse Chains



R. Double

Outside width 12½ in.—Made of 1½x⅜ in.

The 10 to 15 Tons of Ewart Detachable Link Belting we carry in stock insures prompt shipments.

WATEROUS ENGINE WORKS CO., Brantford, Can.