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THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XIX. TORONTO AND MONTREAL, DECEMBER, 1902. No. 12.

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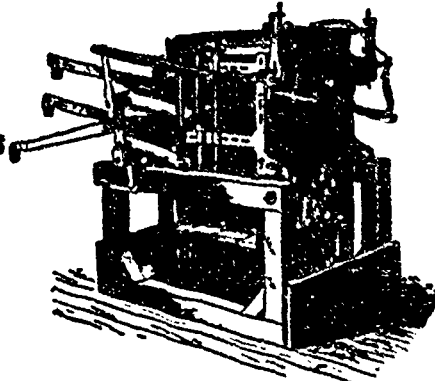
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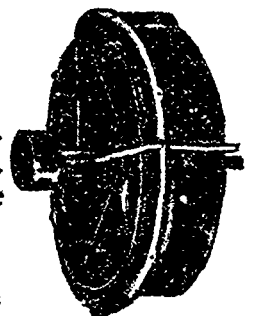
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Vol. XIX.

TORONTO AND MONTREAL, DECEMBER, 1902

No. 12

## Canadian Journal of Fabrics

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### BRITISH SUPREMACY.

The question, what nation shall hold the commercial primacy of the world in the near future, is exercising the minds of a good many writers and thinkers just now. Beneath the frothy imaginations of the rank and file of United States writers, who compare the prospects of Great Britain and the American Republic, there is a substratum of sober reason in an editorial here and there. The American Wool and Cotton

Reporter, for instance, while sure that ultimately the great natural resources of the United States, many of which are only in the beginning of development, will place that country in the front, thinks that this day will neither be to-morrow or the next day. "Great Britain," the writer says, "is not likely, in our opinion, to yield her supremacy for a very long time to come to any nation but the United States, and it will probably take us a longer time to grasp the prize than some of us are in the habit of supposing. It is unquestionably harder for England to hold her markets than it was a short time ago, and as her coal and iron supplies approximate more closely the point of exhaustion her difficulties must increase greatly. Nevertheless, the English are temperamentally and constitutionally a dominant race, and the long period during which the United Kingdom has enjoyed the undisputed industrial supremacy of the world has given them an enormous accumulated capital with which to wage a fight against competitors more richly endowed with natural resources. The gap between Great Britain and her rivals will be less in the future than in the past, but British influence in the affairs of the world is not nearly so greatly threatened as some persons have been in the habit of supposing. The stolidity of the insular temperament has deceived a good many people. England will for generations to come be equal to all the demands on her. She must be content to see her offspring equal and finally surpass her in the race; but she will have the proud consciousness that their success is largely due to the fact that they are her offspring." If the writer admits this much when considering the high place of Great Britain, as she now stands, the premiership of the United States would be still more doubtful if Great Britain is considered, not as a kingdom in itself, but only as the heart of a federated British Empire. If the United States has enormous resources, many only now developing, Canada, a part of the Empire, has equally great natural resources, most of them in a yet more virgin state. Australia and New Zealand, two other members of this Empire, have different—and, for that reason, perhaps more valuable—undeveloped natural resources; South Africa, another member of this British Federation, has possibly yet

more varied resources, only in process of being utilized; the other parts of Africa under British control; and India and the other scattered dependencies are capable of undreamt of achievements. Their very geographical separation under the changing aspect of transportation problems is an element of influence and power in the British Empire of the time to come. And yet all depends on the moral qualities at the back of these material resources. "Ill fares the land to hastening ills a prey, where wealth accumulates and men decay." The Power that turned Nebuchadnezzar out to eat grass and become a companion to the ox, at the very zenith of his commercial power, and while his "resources" were most highly "developed," is yet in control of the destinies of nations. A nation that estimates its greatness only by its material wealth is already on the down grade, though the people may not realize the situation till their momentum is too great to apply the brakes.

#### FLAX BINDER TWINE.

The *Journal of Fabrics* has on one or two recent occasions called attention to the suitability of flax as a raw material for binder twine, especially in Manitoba and the North-West, where so much twine is consumed and where flax can be successfully grown. The manufacture of this class of twine is likely to become an important industry in the near future. The Deering Harvester Company and the McCormick Harvesting Machine Company, both of whom are establishing works in Canada, have been experimenting for some time, and with such success that a number of carloads of twine made from flax were distributed and used in the North-West the past harvest. Reports indicate that it was in every way successful. It spins even and makes a very strong twine, stronger by test than Manila. It is difficult to ascertain the exact facts, but the *Cordage Trade Journal* understands that a large amount of special machinery for the manufacture of this twine has been ordered from England, in addition to machinery that is being made in this country by the harvester people, and it is also reported that a large amount of raw material is on hand for manufacture into twine for next season. The harvester people will give no information regarding their processes, but it is reported that they have developed three, or possibly four, distinct processes of preparing the fibre for spinning, each of which is found practical and on a commercial basis. In one method the straw is retted by a quick chemical process, while two other methods reduce the straw into fibre by mechanical means, the unretted straw going in at one end of the machine, and coming out at the other end in a sliver ready for spinning.

The *Journal* says that hard fibre men in Chicago are inclined to be sceptical regarding flax, basing their

opinion on the numerous failures of the past. Taking corn harvesters as an analogy, it points out that a million dollars was spent before a practicable machine was reached, and the money was considered well spent. Flax straw can be easily and cheaply produced—in fact it is the cheapest raw material of its class in the world. The only thing needed is machinery to convert it into twine. It is said that has already reached such a basis that it can compete with hard fibre at four cents and still make a large profit.

A great deal of the flax straw is now burned to get rid of it, so that it seems reasonable that it could be laid down at twine factories, established in the neighborhood, at a cost of not more than one cent per pound of twine. With automatic machinery the cost of manufacture should be very low, in fact, so low that flax twine might entirely supplant hard fibre twine.

The *Cordage Trade Journal* suggests that other uses might also be found for flax fibre. A refining process might be found that would complete the work of retting or separation so as to produce a fine soft fibre that, for many purposes, would be superior to cotton, as well as cheaper.

Between the possibility of flax fibre and sweet clover, the latter of which has already been suggested in the *Journal*, we see no reason why Canadian farmers should not have cheaper binder twine, besides making us independent of foreign countries for the supply of raw material for an article of ever-increasing consumption.

#### WOOL SUBSTITUTES.

During the last few years there has been much agitation on the shoddy question in the United States, and recently the question has crossed the Atlantic. Of course the subject is not new, but it has received fresh attention from a resolution relating to the need for legislation on the compulsory distinction between wool and wool substitutes, brought before the Chamber of Agriculture at London. The aim seems to be to bring wool goods under the merchandise marks act. Such a suggestion would be very difficult to carry out in practice, and the British wool growers, who are the complainants, would derive very little benefit, for the reason that the many grades of shoddy and mungo and the various mixings of wool and cotton tend more towards the imitation of merino wools, and there is very little chance of anybody buying any of these substitutes in mistake for British wool. Then, again, shoddy and other substitutes can be worked up into such a tasteful and durable form that they are unknowingly worn by many who would at first scorn the suggestion, but who would continue to buy it after they

had ascertained its real origin. There should, however, we think, be some means of distinguishing between a pure-wool fabric and its imitations. The manufacturer can easily see the difference, the merchant knows full well what he is buying, but the average customer can scarcely tell wool from cotton, and falls a ready prey to the untruthful shop assistant, frequently buying inferior goods when willing to pay a better price for the genuine article. The customer deserves to be protected.

### THE WOOL SITUATION.

After a period of depression that will long be remembered by dealers and manufacturers, the wool situation has brightened and prices are likely to remain for some time on the higher level they have now attained. The boom of 1899, which so affected the European market, was at bottom a speculative movement, and it was brought on at a time when wool supplies were plentiful nearly all over the world. This proved all the worse for the speculators, and the pill they had to swallow is a reason why the market has been so long in recovering even after it was felt that the surplus stocks were exhausted and the conditions pointed to a coming scarcity. In the markets outside of Canada the situation appears to be briefly this: Supplies from Australia, South Africa, and Buenos Ayres have greatly diminished, while the wool production of both the United States and Canada has remained stationary. The effect of this disappearance of the surplus stocks has been seen in the current colonial wool sales in London, where prices have advanced about 20 per cent. in spite of the over caution of operators.

In the case of Australia the shortage is caused by an almost unprecedented drought, which in some sheep districts has been more intense than ever this year, and from which sheep have been dying by the thousand. Immense quantities of sheepskins, said to be 250,000 a week, accompanied by thousands of bales of dead wool, came into the markets of the Australian cities, a sad proof of the havoc of the drought. In 1895 there were 120,432,019 sheep in the commonwealth, the highest number ever reached, but last year they were reduced by the drought to under 91,000,000, a loss of nearly 25 per cent., while the number to-day must be still less. The ensuing clip will be the smallest in twenty years. In South Africa the supply is reduced by the effects of the war and the consequent neglect of sheep husbandry as well as the demands of the British army and Boer commandos on the wandering and uncared for flocks. The South African supply was 278,816 bales in 1898 and 217,008 in 1901, while it will be still smaller this year. In the River Platte region the shortage last year was from an opposite cause to that of Australia, namely, floods, which destroyed many

sheep and reduced the supply for that season by 25,000 bales.

In the annual review of the National Association of Wool Manufacturers for 1902, just issued, there are some interesting facts and figures on the wool situation in the U.S. In that part of the States lying east of the Missouri river, sheep raising has been on the decline in recent years, west of that line sheep raising is well maintained, though in some states, such as Utah, the country is overstocked. The report expresses the opinion that most of these western states "have reached the limit of their production." In the eastern states sheep raising has been slowly and steadily on the decline for years, but in Texas, heretofore famed for its wool clip, the decline has been recent and sudden. In 1899 the number of sheep in this state was estimated officially at 2,786,688, while now it is estimated at 1,440,000. This remarkable falling off is attributed to the fact that most of the public domain heretofore devoted to ranching has been cut up into farms, thus putting an end to sheep raising as a range industry.

It is unfortunate that in Canada only the Government of Ontario compiles returns of the sheep raising industry. Taking the returns for 1901, recently issued, we find that during the year there were slaughtered or exported 729,148 sheep, valued at \$3,103,513, or an average value of \$4.26 per head; and there were left on hand in the province 1,761,799. This shows a larger slaughter than any previous year since 1896 and 1897. The number on hand is also smaller than in 1899 and 1900. The clip of wool, however, appears to be well maintained, being last year 5,834,007 lbs., being a little more than any preceding year since 1893, when it had reached 5,896,891 lbs.

The average weight of the Ontario fleece appears to be somewhat on the increase, being 6.14 lbs. per fleece last year, as compared with 6.06 lbs. in 1900, and under 6 lbs. in the preceding eight years. The average weight per fleece of Ontario wool is greater than the general average of the U.S., though below some individual states, the average fleeces of Oregon and Washington, for instance, being 8½ lbs.

### MANUFACTURE OF HATS IN CANADA.

A subscriber, writing to The Journal of Fabrics recently, estimated the yearly importation of hats into Canada as one and a half million, and says the capacity of Canadian hat factories is only sufficient to supply the city of Montreal. This would appear to indicate that there is a fine field for expansion in this line of manufacture, for in addition to supplying the home market Canada might do something in the way of export. There are, however, difficulties in the way. We fancy

the estimate given by our correspondent is not far astray, as we find on reference to the Trade and Navigation returns that the value of hats and caps of beaver, silk or felt (not including straw, grass or chip), for the fiscal year ending in 1901, was \$1,074,418. For the same period Canada exported hats and caps to the value of \$10,003. The latter is very satisfactory, as the figures jumped from \$1,731 in 1900.

The difficulties under which our hat manufacturers labor may be stated under two heads. Were these goods known to have been "Made in Canada" they would not sell in the home market, for there is a large class of customers who, as in the case of tweeds and some other lines, will not buy Canadian goods, though they will take the very same goods on their merits if they do not know that they are home produced. In consequence, most of the Canadian made hats are not marked with the maker's name, but "Made for —," just as imported goods are also frequently marked. Some of our readers may be wearing Canadian made hats without being aware of it. The other difficulty arises from want of adequate protection. The preferential tariff does not affect them as it does the woolen men, because English made hats are not of the style which takes, but our makers suffer from the competition of the large hat producing centres in the United States, which make Canada a slaughter market. In fact if Canadian hat makers did not adopt the American styles they would not be in it at all.

The present duty on hats imported from the United States is thirty per cent. A meeting of hat manufacturers was held at Montreal a couple of weeks ago at which forty-five per cent was named as the rate which would give them a fair protection. It is to be hoped that in any readjustment of the tariff which the Government may have in contemplation the claims of Canadian hat-makers will not be overlooked. There are only some fourteen or fifteen hat factories in the country now. The one just removed to Brockville, and a proposed new one at Hamilton, will increase the output, and with a little more protection we should be able to supply a greater proportion of the home consumption, and increase our exports as well. There is no reason why we cannot produce a class of goods which will command both markets.

—The colored man, who at one time was considered only good enough to work in the cotton field, is asserting himself in the after processes which follow the growth of the cotton. A 3,000 spindle mill has just been built at Dallas, Texas, and the machinery installed by negro workmen under colored superintendence. The principal stockholder and secretary of the company is Joseph E. Wiley, one of the leading colored men of the south. The product will be 8's and 10's cotton yarn.

—It pays to make a good quality of goods. The Shareholder makes the statement that the Boyd Caldwell Co., of Lanark, which makes fine woollens, rugs and shawls, sold the entire production of this year in ten weeks.

—Another instance of the mill being taken to the raw material is seen in the establishment of a rope factory near Manila, in the Philippine Islands. American machinery has been installed, and a market will be found in the islands, Hong Kong, Singapore, etc.

—With regard to the utilization of the fibre of the sweet clover for binder twine, lath ties, etc., as suggested in a recent number, we learn that a large manufacturing firm is making experiments with this material, and we hope to report the result at an early date.

—Rumor has it that tariff changes will be made at the coming session of the Dominion Parliament, which is expected to convene about February 19th. If such is the case, no doubt the woolen men will benefit, for there is no branch of manufacture which has a greater claim. Of course nothing definite will be known till Hon. Mr. Fielding makes his budget speech.

—The German Emperor and his Government have brought sufficient pressure to bear on the German legislative machine to secure the acceptance of the new tariff, but the woolen manufacturers of that country, like those of Canada, find that they are called to sacrifice their business prospects on the altar of patriotism; and the cry has gone up from all the textile towns of the Empire that the German woolen industry will be ruined if the tariff remains in its present shape.

—According to the statement made by Alex. Macpherson, manager of the Canadian Rubber Co., of Montreal, he who buys Canadian rubber goods in preference to those manufactured abroad, is not making much of a mistake. "In our reclaiming plant," said Mr. Macpherson, "we always prefer to use stuff which has been made up in Canadian factories. Why? Because there is more rubber in it. In the States, again, their goods have a higher percentage of rubber than have those made in Europe, where there are also very large factories. But Canada stands at the head of the list." Made in Canada evidently stands for much in the rubber goods line.

—An effort is being made in Italy to work up a trade in knit goods with Brazil. Here is a chance for Canada. Large quantities of knit fabrics are consumed and very little is manufactured. There is one mill at Rio, another at St. Paul, and a third one of small capa-

city at Port Alegre. The wealthier class of Brazilians usually wear a light wool flannel waistcoat. The working classes wear cotton knit goods jackets of a gray color, both with and without collars. At St. Paul the demand is mostly for cotton flannel waistcoats, the bulk of which are black and weigh about  $6\frac{1}{2}$  lbs. per dozen. These are imported largely from Italy. The finest grades are unbleached and manufactured in Germany. They are double-breasted, the sleeves provided with cuffs, and a wide band at the neck. These goods are of strong texture, although even the largest sizes do not weigh over  $2\frac{3}{4}$  lbs. per dozen. Knit underwear is not in much demand, though it has recently come into use for cyclists, but large quantities of knit hosiery are consumed, most of which comes from Germany. Not over 3 per cent. is woolen, but Canada should be equal to producing cotton knit hosiery.

### SOFTENING WATER IN DYEING.

The best and most effective means for obtaining a pure neutral reactive water, says the Textile Manufacturer, is the precipitation of the bicarbonate and sulphate of lime it contains by means of caustic lime and carbonate of soda. As in all processes for the purification of waters, this improvement can only be effected by careful analysis and efficient supervision. The lime employed is intended to transform the bicarbonate of lime into a neutral salt, which is insoluble in the water and forms a sediment after standing a short time. The carbonate of soda used is intended to transform the sulphate into carbonate of lime and sulphate of soda. The latter salt is neutral, and by no means injurious. For the purpose of following up this method, the water must be analyzed for any possible contents of lime, magnesia, and iron oxides, as well as for the quantities of carbonates of lime and magnesia, and further for sulphates of lime and magnesia. From this analysis the chemist must calculate the quantity of caustic soda which is necessary for the precipitation of the bicarbonates of lime and magnesia and the quantity of carbonate of soda necessary for dealing with the sulphates of those metals. Should there be also chloride of lime and magnesium in the water, they must be reckoned with the sulphate of lime. Those items once obtained it can be known through them how much lime and carbonate of soda is necessary for each gallon.

The necessary quantities of caustic lime and soda solution are stirred up in the required number of gallons of water to a milky consistency and left standing for filtration. After this process is carried out properly, the water contains neither lime nor magnesia, but only neutral sulphate of soda, besides a small quantity of harmless salts. It may perhaps appear paradoxical to add lime to water which is already calcareous for the purpose of purifying it, but it must be remembered that the water generally contains bicarbonate of lime, which by a careful addition of lime is decomposed into insoluble simple carbonate of lime, forming a muddy sediment, which carries down with it many organic matters present in the water, which is thereby more completely purified. The lime also precipitates out any bicarbonate of magnesia which is present.

The water might, also, according to further experiments,

be heated to the boiling point, and while in that state a soda solution added for the same purpose. All matters producing hardness, as lime and magnesia, appear as slakes after a few minutes, and about half an hour after boiling they form a hard and heavy sediment. The water is, after this operation, very soft and remains clear after an addition of a soap solution, and by the slightest agitation with a small quantity of soap a very strong lather is produced. The water purified in this manner cannot possibly be injurious to dyes. To know the quantity of soap which is required per 100 gallons, the hardness of the water should be previously ascertained.

To determine the hardness of the water the following is a very simple process: About  $17\frac{1}{2}$  pints of water must be heated in an appliance adapted for the purpose. About 35 drachms of ammonia soda are then dissolved in one and three-quarter pints of clear rain water. Small quantities of about one-half oz. are from time to time added to the  $17\frac{1}{2}$  pints, until a sample taken from it remains perfectly clear after an addition of a soap solution. The number of ounces of the soda solution required shows the number of half-drachms of soda required for  $17\frac{1}{2}$  pints.

Dyers have been warned in regard to the injury attached to the softening of calcareous waters by means of milk of lime. It is undoubted that carbonate of lime can be precipitated in water in which the excess of carbonic acid is found, as without it the lime cannot remain in solution. But the critical point in the investigation is how much milk of lime is contained in the water in question, and how much caustic lime is contained in the milk of lime. Can that be practically known in each particular case?

In addition to this it must be considered that milk of lime cannot be preserved in the open air, as the caustic lime gradually changes into inactive carbonate of lime, thereby destroying the action of the whole solution. But there remains still a greater danger, which is that those interested might add an excessive amount of milk of lime to the water, and instead of making the water softer, really harden it. In such cases, where the water is softened by an excess of lime, it reacts strongly alkaline, and considerable annoyance is experienced in using it for dyeing and washing. The hardness of waters, moreover, is not always occasioned by the presence of carbonate, but very often from sulphate of lime. Matter cannot be precipitated by means of milk of lime. There is no other means, says the Dyer and Calico Printer, but the one previously mentioned, namely, an addition of soda solution along with the lime or to the water when warm. The sulphate is thereby decomposed into carbonate of lime, and becomes quickly precipitated by reason of all excess of carbonic acid being expelled in the boiling of the water.

### FABRIC ITEMS.

The jobbing hat firm of MacLean, Ross & Co., Montreal, is said to have arranged a 40 per cent. compromise.

Canadian glove factories are reported to be very busy and unable to keep up with their orders.

Geo. McSween, tailor, Goderich, has assigned. He has been in business since May, 1900, when he succeeded Samuel Grierson.

The United States cotton crop is turning out better than was expected and there has been a decline in the price of raw cotton.

The first artificial indigo was made in 1879, from orthonitrophenylpropionic acid, an inorganic acid of which nitrogen and phenol are chief elements.



Henry Saxe and David Levy were acquitted at Montreal of the charge of conspiracy to defraud their creditors.

It is reported from New York that two-thirds of the spring orders for women's wear are for goods with a plaid or check effect.

Woolens have advanced 5 per cent. in the United States and are firm at the new quotations. Business is not so good as at this time last year.

Copper as an ornamentation for umbrella handles, both men's and women's, is a feature of the trade which is spoken highly of as being especially adapted to the popular buckhorn and ivory handles.

S. Carsley, sr. has resigned his position as president of the S. Carsley Company, Montreal, and is succeeded by the vice-president, William F. Carsley. He retains his seat on the board of directors.

At a recent meeting of the Canadian section of the Society of Chemical Industry, J. P. Murray, of the Toronto Carpet Co., as a manufacturer urged young men to study chemistry as an aid to manufacture.

An assignment has been made by L. O. David & Co., tailors and haberdashers, Buckingham, Que., liabilities, \$2,700. Mr. David has of late been doing business in his wife's name, owing to a former failure.

J. S. Henderson's moccasin factory at Parrsboro, N.S., was burned Nov. 28, with 20,000 pairs of larrigans, involving a loss of \$40,000, and throwing 100 men out of employment. It was one of the largest in the province.

The Manes Tailoring Company has been incorporated in Ontario, with head office at Toronto, and a capital of \$40,000. The provisional directors of the company are Thomas W. Manes, John M. Spence, Emma Spence, Thomas Crawford and J. W. St. John.

Max Wolfe, the Toronto furrier, sentenced to three months in the central prison for the theft of furs which it was alleged he retained instead of handing over to the assignee when he made an assignment, has been released after serving about half his term.

S. D. R. Fernie, western representative of the Hudson Bay Knitting Co., and dealer in other lines of clothing, after a trip east to get goods from the factories, reported that in almost every branch of trade manufacturers are working to their utmost capacity and cannot fill their orders.

A very valuable train recently passed over the C.P.R. on its way from Vancouver to New York. It was a special silk train, made up of 13 refrigerator cars, containing the cargo of the C.P.R. liner *Empress of China*. The freight consisted of raw silk, and was valued at \$9,750,000.

Chas Blackadar of Lynn, Mass., Vital Raby, F. Laurendeau and Omer Lapierre, of Montreal, have been incorporated as the Reversible Rubber Heel Co., of Canada, with a capital of \$40,000, to take over the patent held by the first mentioned, and manufacture a reversible rubber heel.

The Yorkshire Wool Combers' Association, of Bradford, England, organized in 1899 with a capital of \$9,575,000, has announced suspension of payment. The company has a capital of \$10,000,000, and includes 41 distinct organizations. It exhausted its working capital in an unsuccessful attempt to buy up important independent firms.

The Hartford Rubber Works, the Indianapolis Rubber Works Company and the Morgan & Wright Company have made a combination. The companies will retain their individuality, but will be operated on a community of interest basis. J. C. Wilson, secretary of the Hartford Company, will be general business manager.

Canadian manufacturers are making steady progress in the production of fur felt hats, and the goods meet with ever-increasing favor, consumption showing a constant advance.

Canadian manufacturers of blankets are still badly behind with their orders. This has been the case for some time, and the situation does not seem to improve. Heavy demand from the West is given as the principal reason. Some mills talk of increasing their capacity to meet the demand.

An artificial wool made from turf fibres is now employed in Dusseldorf, Germany, for manufacturing cloth bandages, hats, rugs, etc. Ten years of experimenting have resulted in the production of a soft fibrous material, which, it is said, can be spun as readily as sheep's wool, and which, besides possessing excellent absorbent properties, is capable of being bleached and colored for use in many different textile industries.

The crop of flaxseed in Manitoba and the Territories is to a large extent out of the hands of farmers. Some districts are still shipping odd cars, but the bulk of the flax is cleaned up. This is particularly true of the Mennonite reserve, which is the largest single producing district. The price paid to farmers for this crop has ranged from 98c. to \$1.05 per bushel. The quality has been almost uniformly good; a large proportion grading No. 1.

Licenses have been granted by the Ontario Government to the Canadian Woolen Manufacturing Company to acquire the business formerly carried on by the Canadian Woolen Mills Company at St. Hyacinthe, and Alex. Alexander, of Toronto, is appointed to act for the company in that province; and to the Novi Modj Costume Co., incorporated in the province of Quebec, to carry on the manufacture of women's and children's clothing, with H. C. Boulter, of Toronto, chief agent of the company.

Tenders have been awarded by the Winnipeg city council as follows: Archibald Wright, cloth caps for fire department, \$11.40 per dozen. Winnipeg Rubber Co., rubber boots, \$2.96 per pair; rubber coats, \$4.25 each; the coats to be supplied with pockets and automatic fasteners, and to be stitched around arms. The Gutta Percha & Rubber Mfg. Co., for 1,000 feet of 2½ inch Paragon hose, at 90c. per foot, with couplings complete. Hudson's Bay Co., for mitts at \$4.50 per dozen pair, sample Alaska brand.

There is a great demand for fancy corsets. The shape is decided. The straight front in not too exaggerated a form is here to stay. Now that there is less rivalry among corset makers in regard to form, materials and trimmings seem more important. High priced corsets are growing more and more elaborate. A corset of white silk stitched with black is ornamented with a flat bow-knot design done in narrow black velvet. A corset of pale yellow silk has a wide spray of pale violet and white French lilies running over it in fan-fashion from the narrow point in front.

Stewart, Allan & LeMaistre, manufacturers of shirts, blouses, etc., Montreal, have assigned, with liabilities of \$44,500. The firm is a new one, having begun in January, 1901. All the members were employees of Tooke Bros., in the same line. Want of capital is the cause of the failure. The principal creditors are: Dominion Cotton Mills, \$4,543; Hurlburt, Mills & York, \$1,352; S. Greenshields, Son & Co., \$1,017; S. Hird, \$2,119; Dominion Cotton Mills Co., \$1,200 on special account; L. Roessel & Co., New York, \$1,070; Wm. Anderson Company, Glasgow, \$1,873; Toodel, Broadhurst & Lee Company, Manchester, Eng., \$1,596.74. The Quebec Bank, secured, \$11,179.64. John Hyde, Montreal, is provisional guardian.

There are rumors of a new woolen factory at Georgetown, Ont.

The Warwick Overall Co., at Warwick, Que., was burned out on October 29th.

Canadian styles in stiff and soft hats are steadily advancing in favor with Canadian wearers.

A meeting of the creditors of Miss M. Taylor, milliner, Richmond, Que., has been called.

The name of the Ontario Farmers' Cordage Co. has been changed to the Brantford Cordage Co.

A few days ago John McGowan, M.P., handed the C.P.R. agent at Elora a cheque for \$100,000 in payment for flax.

The custom cutters of Brantford visited Hamilton on Dec. 1, and were entertained by the tailors of that city.

In consequence of danger from cattle disease the importation of wool into Canada from the New England States is prohibited.

A large combination is announced in the rubber industry, to be known as the International Rubber Company, with a capital of \$25,000,000.

The M. B. Lee Company, which has been conducting a ladies' tailoring establishment at Winnipeg, has made an assignment to C. H. Newton.

The Montreal Cotton Company has declared a quarterly dividend of 2½ per cent., being at the rate of nine per cent. per annum, payable 15th December.

A special exhibition of the King's Coronation robes and other work has been opened at the Royal School of Art Needlework, and attracted great numbers of visitors.

The Rapid City Power, Light and Woolen Manufacturing Co. is applying for incorporation with a capital of \$25,000. It will utilize the water power on the Little Saskatchewan.

The Glovers' Journal says that fine grained lambskins make excellent glove leather closely resembling genuine kid. The younger, smaller and firmer the skins are the better leather they make.

The New York Silk Waist Manufacturing Co., of Montreal, have added underskirts to the classes of goods made by them. New machinery has been installed, and a special designer engaged from Paris.

The last report of the Ontario Bureau of Industries says of flax: This crop has done well where raised, but it is not so largely grown as formerly. It has succeeded better this season in the Lake Huron counties than in the West Midland group.

A commission is to be appointed at Toronto to proceed to Medicine Hat and take evidence regarding the subscription to the stock of the Western Canada Woolen Mills Company, of that place, which is in liquidation. The liquidators dispute an account of \$2,700.

Jackson Bros., of Clinton, Ont., who a couple of years ago went into the manufacture of boys' clothing, find their business has so increased that they are offering their retail clothing business for sale, and will devote themselves entirely to wholesale manufacturing.

Among the distinguished delegates from Great Britain, who recently visited Canada to enquire into industrial conditions, was John Hume, chairman of the Textile Section of the Chamber of Commerce. Mr. Hume expressed himself as greatly astonished and pleased with what he saw.

It is reported that some United States binder twine factories are already canvassing for next season's business. They are not quoting prices, but simply book orders subject to quotations at a given date or time of delivery. The market is expected to open at 10 or 11c., Chicago basis.

T. F. Kingsmill, of London, dry goods merchant, has enlarged his store, which is now one of the best outside of Toronto.

Street gowns of rough, shaggy materials are unusually popular. Black and white is the most popular. Next in favor comes gray and white, then blue and white, whilst newest of all are the dark blues and black with the raised dots and threads in yellow or red.

Canada's imports of raw cotton have been nearly 50 per cent. greater in the four years, 1898-01 than they were in the four years 1894-7, remarks The Hamilton Times. That means that the cotton mills have been kept busy, and have given employment to a large number of hands.

The Rocheleau Shoe Company, with a capital of \$20,000, to carry on the manufacture of all kinds of shoes and gloves has been incorporated under the laws of Quebec. The charter members are: Antoine Rocheleau, Alonzo Rocheleau, G. A. Drouin, of Drummondville; O. Brouillard, of Carmel Hill, and E. L. Desautels, of Montreal.

Wm. Livesey, of the loom-making firm of Henry Livesey, Limited, of Blackburn, declared, as the result of his visit to the United States, that the Lancashire weaving industry was on the eve of enormous changes. There were 60,000 Northrop looms at work in America, and he had seen orders for 20,000 more. Weaving prices were more than cut in half by the new loom.

Jacob Jesurun, His Britannic Majesty's Consul at Curacao, Dutch West Indies, is on a visit to Canada to establish relations with Canadian manufacturers. He is in a position to do a great deal for Canadian trade, not only where he is stationed, but in Venezuela, Colombia, Hayti and San Domingo. Here is an opportunity for our textile manufacturers to extend their trade.

Harry Henry and Henry Stern, tailors, recently brought an action before Judge Morgan in the County Court, against P. Marshall for \$200 damages for non-performance of an alleged contract to employ them at a special price. The defendant contended that if any contract was ever entered into between the parties the plaintiffs themselves terminated it. The jury awarded Stern and Henry \$150 damages.

The business of McFarland, Gray & Southgate, wholesale manufacturers of clothing, shirts and overalls, Toronto, is to be wound up by order of the court, on application of W. J. McFarland, a shareholder. The liabilities are about \$100,000, with assets nominally of the same amount. E. R. C. Clarkson is interim liquidator. The company was organized with a capital of \$200,000, of which \$100,000 was paid up.

The export of straw braid from China has been steadily declining, owing to the lack of attention paid by the native producer to the warnings of the foreign purchaser that, unless greater care were exercised in plaiting and packing, the trade would be diverted elsewhere. Japan has taken up the industry, and as the result of intelligent technical instruction and of taking pains, an article is turned out more regular in make and quality than Chinese braid. Canada imports considerable quantities of straw braid, which is made up into hats here.

A bullet-proof textile fabric that will, apparently, stop a revolver bullet of any calibre, has been tested at New York. The fabric is the invention of Casimir Zeglin, a lay brother of a religious order, of Chicago. The tests were made in the presence of a number of officers. Shots from revolvers, ranging from 22 to .44 calibre were fired at from five to eight yards at the cloth. The regular police and army revolvers were used, as well as several others, including a powerful target pistol. Smokeless and black powder were

used. The effect of every shot fired was practically the same. A black circle showed where the missiles struck, but, on the other side, the cloth gave only a slight indication of the impact. One or two .22-calibre shots stuck in the cloth. Not one penetrated entirely through.

The Dominion Transport Co. has brought a claim against the city of Toronto for damage done to a valuable knitting machine which was jolted off one of its lorries on account of the bad state of the street. The machine was on its way to Joseph Simpson's Sons knitting mill.

The Tower Canadian Oiled Clothing Company, Ltd., has been incorporated under the laws of Ontario, with a capital of \$100,000. The head office is at Toronto, and the provisional directors are Walter S. Barker, Wilnot R. Evans, Robert F. Herrick, Samuel Henderson and Emma E. Henderson. The two latter are residents of Toronto, the others of the United States. The company is authorized to acquire the business of the Canadian Oiled Clothing Company, and the Canadian business of the A. J. Tower Company, incorporated under the laws of the State of Maine.

Hamilton & Co., wool importers, 52 Wellington St. W., Toronto, make the following announcement: We regret to have to inform you that F. W. Richardson has ceased his connection with our firm. We have appointed H. M. Gladwell and F. E. Robson in his place. Mr. Gladwell (who will have charge of the wool branch of our business), has had a large experience in handling the various wools, etc., required in the textile trade, and knows thoroughly the classes imported to this country, as well as the needs of Canadian manufacturers. Mr. Robson (who has been in our service for the last eighteen months), will have charge of our yarn business and attend to the requirements of the customers in this branch. The firm announce that they will keep a large collection of all grades of wools, tops, wool wastes, yarns, etc., especial, selected to meet the requirements of customers in Canada.

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## Personal

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W. Esley Smith, senior member of the firm of Smith Brothers, wholesale dry goods merchants, Halifax, is dead.

Mr. De Guerre, of the Canada Woolen Mills, Hespeler, has removed to Preston, where he has entered the employ of S. J. Cherry, miller.

S. P. Tempest, formerly boss carder at Chambly, has returned from Massachusetts and resumed his former position.

J. A. McIntosh, late of the firm of J. A. McIntosh & Son, Guelph, has gone to Hamilton, to be head of the linen department in the establishment of Thomas C. Watkins.

Thomas Osborne has given up his position in the electrical department of the Dominion Cotton Mills Co., at Magog, to accept a more lucrative position with the Ampere Electrical Mfg Co., of Montreal.

John Branford, who has been employed in the Guelph Carpet Factory for the past three years, has gone to Sherbrooke, where he has secured a good position with the Dominion Carpet Co. Mr. Branford is an expert carpet weaver, and has, according to the Mercury, turned out some of the best carpets ever produced in that section.

Charles J. Altman, of the Union Hat Works, was entertained by the citizens of St. Johns, Que., at a banquet, and presented with an address and a handsome umbrella, on the occasion of leaving for Brockville, to which town the works have been removed.

A woman, named Catherine Lawley, of Hamilton, whose arms were injured in a mangle at the laundry of Upper Canada College, had them saved by the process of skin grafting. Portions of her own skin and that of a friend were used in the operation.

Fred. Caldecott has severed his connection with the Merchants' Dyeing and Finishing Co., to take the position of European buyers for Debenham, Caldecott & Co., who are opening a warehouse in Montreal. On leaving, he was presented with a gold chain and locket by his fellow employees.

John Spalding, on leaving Galt, where he has been with the C. Turnbull Co., manufacturers of knit goods, for a dozen years or more, to engage in manufacturing at Clinton, was presented by the employees with an address and upholstered couch, and by the girls of the knitting department with an address and a gold mounted silk umbrella.

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—The Cawnpore (India) woolen mills have netted 12 per cent. each year for 11 years. Much of the stock is in British hands.

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Years ago an old dyer's sign over Moneypenny's shop, on Canal street, New York city, read: "Although we dye daily, we continue to live."

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—A London letter says it is impossible to get white things white in that city unless they are sent to the country to be bleached. It is quite true, as someone has remarked, that London washing is done in a dilution of grime."

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—Linen industry is securing much attention in Prussia, where technical schools are being fitted up for it. The weaving school at Sorau has been considerably enlarged and theoretical and practical instruction will be given by competent teachers in flax culture, spinning, rope-making, weaving, dyeing, finishing, designing, embroidery and lingerie.

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—According to a process patented by J. Williams, of Hackney Wick, textiles are protected from rotting, and are at the same time waterproofed, by being passed through a solution prepared by placing copper turnings in a solution of carbonate of ammonia, and then passing air or oxygen through the mass till a clear solution is formed. The impregnated fabric is then dried.

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—For putting a gloss on textile fabrics a German has patented a method of coating the fabrics with celluloid by painting over the materials with such thick solution once or several times. A high glossy coating is thus obtained, whilst when painting over with a thin solution of celluloid (the so-called zapon) no glossy coating whatever is obtained. In order to render the process more effective and quicker, it has been found advantageous to use a thick solution, and according to the density of the solution, it may be possible to get a high, glossy surface when painting over only once. The thick solution of celluloid should be of the consistency of syrup, and composed of 100 parts by weight of amylic acetate or amylic acetate and acetone, 7 to 12 parts by weight celluloid, and 10 to 18 parts by weight castor oil.

## MECHANICAL DRAUGHT FOR MODERN STEAM BOILER PLANTS.

By S. R. SHELDON.

Ever since the time when steam was first used in the generation of power, the chimney has been the commonly accepted agent for supplying the necessary amount of oxygen for the combustion of the fuel used to generate steam. This oxygen comes from the air and this air is made to enter the furnace by the draught produced by the difference between the weight of a column of hot gas inside of a chimney, and that of a column of air outside. If this chimney draught, or natural draught, as it is more commonly called, satisfactorily met all of the requirements of modern boiler practice, one would hardly expect to find that substitutes are being brought forward from time to time.

Artificial draught was first introduced for the purpose of increasing the rate of combustion. By improving and experimenting it has, however, become not only a means of assisting natural or chimney draught, but it is now in actual use as a convenient and reliable substitute for the chimney under most conditions. Artificial or mechanical draught has

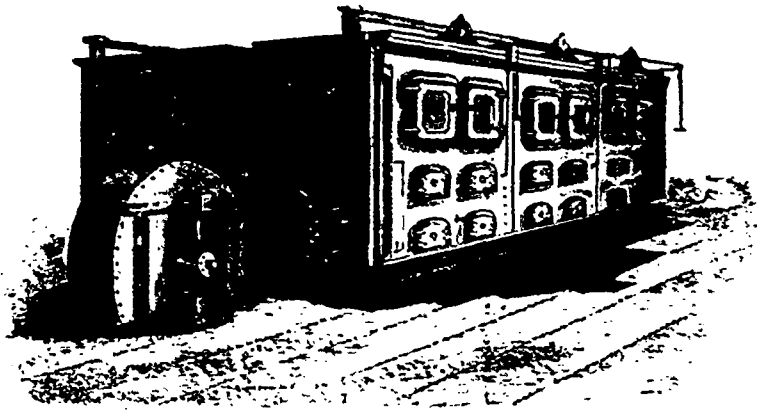


Fig. 1.—Forced Draught, as Applied to a Battery of Three Boilers.

been successfully produced by steam jets, by blowing engines, by air compressors, and by rotary positive blowers, but the device that has been the most successful and has given the best results as to efficiency, economy of operation and flexibility, is the fan-blower or exhauster. This fan consists of a number of blades extending radially from the axis and presenting a flat surface to the air as they revolve. By the action of the wheel, the air is drawn in axially at the centre and is delivered from the tips of the blades in a tangential direction. This fan is more commonly called the centrifugal fan or the steel plate fan.

There is only one system of natural draught; but there are two systems of mechanical draught. The air may be forced into the furnace; or, the products of combustion may be drawn out, thus creating a partial vacuum in the furnace and inducing the air to flow in. When the air is forced by the fan into the ashpit of the furnace, the system is known as the forced draught system of mechanical draught. A blower or steel plate fan is attached to a pipe leading into the ashpit, and the ashpit doors are closed as tightly as possible, and by operating the fan a pressure of air is produced and maintained in the ashpit. On account of the pressure produced by the fan, the air forces its way through the coals into the furnace and then takes up the path of least resistance to the outside air. In the forced draught system, it is

necessary to keep the pressure in the ashpit just about enough and no more than required to overcome the resistance of the passage of the air through the bed of coals and fire on the grate bars, and to have a chimney of sufficient height to produce the slight draught required to carry off the products of combustion from the furnace. When the induced system of mechanical draught is used, the fan is attached to the breeching or smoke flue of the boiler in such a way that when it is operated it sucks the gases out of the flues and creates a partial vacuum in the furnace. Its action is exactly the same as the action of chimney used for natural draught, but is much more positive, efficient, and can be more readily changed to suit requirements.

The application of mechanical draught presents a three-fold opportunity for increased economy in steam production, in the reduction of avoidable losses; in a decrease of the first cost; and in a reduction in the operating expenses, principal among which is the cost of the fuel. Mechanical draught possesses, in addition, certain advantages which cannot be directly measured in money values, such as its pecu-

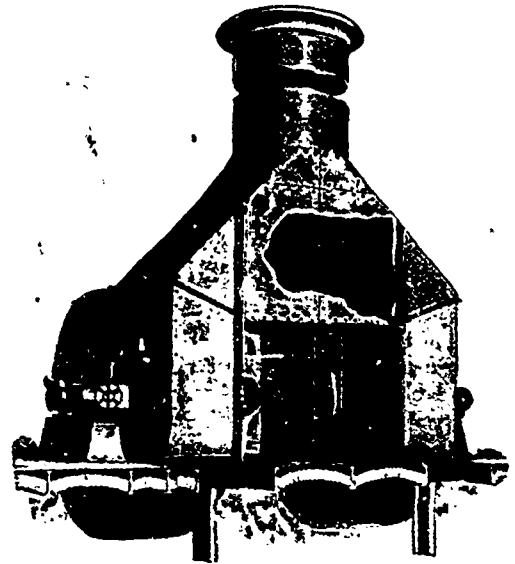


Fig. 2.—Duplex Steam Fans, as Constructed for Induced Draught.

liar adaptability to the requirements, its independence of climatic conditions, its flexibility, portability, and so on. The losses resulting from incomplete combustion are due to inadequate supply or imperfect distribution of the air. The presence of smoke indicates an absolute loss. Although this loss seldom exceeds one per cent. in ordinary practice, even this amount may be almost entirely eliminated and the smoke nuisance may, in most instances, be practically avoided by such regulation of the air supply and the intensity of the draught, as is possible under the conditions of mechanical draught. Theoretically, the amount of air required for the combustion of one pound of coal is about 12 pounds, but practically, with chimney draught, the amount actually supplied, including that resulting from leakages, is far in excess and varies greatly under different conditions. If the air is supplied in excess of that necessary for perfect combustion, there is a definite loss, disregarding that due to the moisture in the air. The excess of air entering the furnace is heated by the burning fuel, thereby lowering the temperature of the mixture of gases and air below that which would prevail if the gases only were present. As a result the rate of evaporation of the water is reduced, for it is dependent upon the difference in temperature between the water and the gases.

also owing to the larger volume of air and consequently higher velocity, there is less time for the gases to part with their heat, and the temperature of the moisture of gases and air, escaping to the outside, is higher than would be the case if there were no excess of air. Again, during the progress of combustion, the hot gases in the furnace evolve finely divided particles of carbon; if the air is supplied to these while they are hot, they are burned, but if too much air is supplied, they become chilled below their temperature of ignition and pass off unburned as smoke. Mechanical draught is the remedy for the above in that it furnishes a proper supply of air under all conditions in which the excess

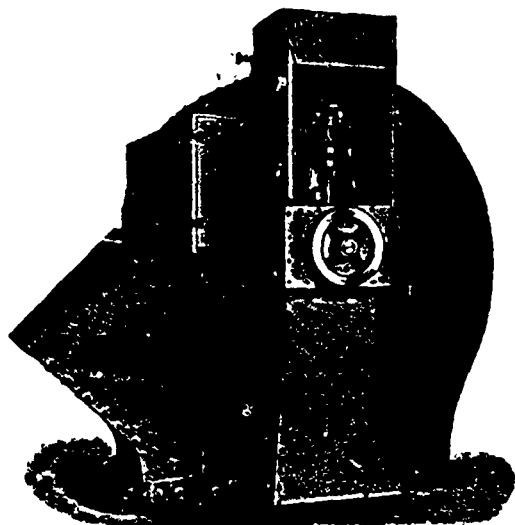


Fig. 3.—Steel Plate Steam Fan, as Applied for Induced Draught. Special Discharge with Direct-Connected Engine Enclosed in Steel Housing.

is just that required for the most efficient and economical combustion. Induced draught by allowing a thicker bed of coal affords a more intimate commingling of the oxygen with the fuel, and thus decreases the excess of air required and increases the rate of combustion. Another important advantage of induced and forced draught is the ability to make use of lower grades of fuel than can be employed in connection with natural draught. As a rule, the cheaper fuels, like the fine anthracites, require for their combustion an intensity of draught which the ordinary chimney is incapable of producing. Possible savings in cost in this line depend, of course, upon the relative costs of fuels in the locality. The higher the scale of prices, the greater the possible savings.

One pound of air occupies a volume of 13.4 cubic feet (nearly), at 70 degrees Fahr. Every pound of coal burned requires, theoretically, 12 pounds of air, but in actual practice the amount of air required ranges from 18 to 20 pounds per pound of coal. Hence a fan to supply air for forced draught system of mechanical draught must handle  $13.4 \times 18$  or 241.2 cubic feet of air at 70 degrees for every pound of coal burned in the boiler furnace. The products of combustion or flue gases pass out of the furnace and enter the chimney and there occupy a volume that depends upon the temperature of the gases. Assuming that, without an economizer, the flue gases are of a temperature of about 550 degrees, it will be safe to say that every cubic foot of air that entered the furnace at 70 degrees will in the chimney occupy double that volume on account of the rise of the temperature. It can be readily seen that, as fan deals with volumes only and not with weights, a fan working on the induced system, when an economizer is not used, must have double the capacity of a fan working on the forced draught

system. The degree of vacuum which may be produced at the inlet of a fan or the pressure that may be maintained at the outlet is dependent upon the peripheral speed of the fan wheel and the velocity of air discharged through an outlet of proper size is approximately equal to that speed. The pressure created by a given fan varies directly as the square of its speed, but the volume of air is nearly constant per revolution, and of course is directly proportional to the speed. The work done by a fan in moving air is represented by the distance through which the total pressure is exerted in a given time. It varies as the cube of the velocity of the air, and naturally as the cube of the revolutions of the fan wheel. A fan should never be made so small that it is necessary it should run above the required pressure in order to deliver the required volume. To double the volume requires eight times the power to drive the fan and three times the volume requires twenty times the power. If it be desired to handle the gases that come from the boiler furnace at a low velocity, and of course at a low pressure, a large fan should be installed and operated at a low speed; just as, to obtain the same results, we would erect a chimney of large diameter but not of great height. If, however, it is necessary to have a high draught or pressure a smaller fan can be utilized, but it must, of course, be operated at a proportionately high speed. If an economizer is used the flue gases are of course reduced in temperature, which naturally reduced their volume and a fan of proportionately smaller capacity can be installed to handle them.

The above shows how the size of fan wheel used for mechanical draught may be varied in size and speed and yet do the work required under certain conditions as to draught and installation of plant. The problem of determining the size of a fan for mechanical draught admits of as many solutions as does the problem of determining the proper size of chimney for the combustion of a given quantity of coal in a given time. A small fan run at high speed will give a greater draft than a large fan running at a slow speed, and the smaller fan will cost less than the larger fan. But although

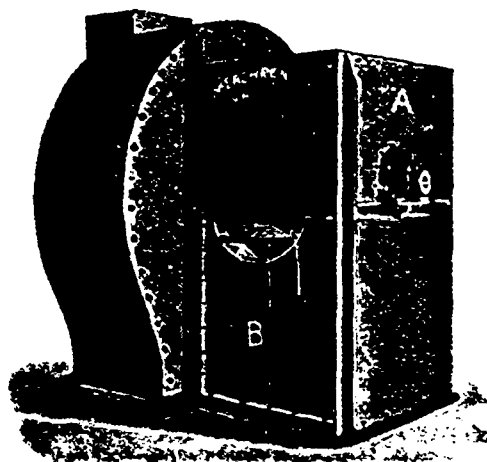


Fig. 4.—Reverse Side of Fig. 3. Showing Smoke Box Inlet to which the Smoke Breeching of Boiler is Attached at Opening B.

the larger fan has a higher first cost, it takes less power to operate, and it can be made to take care of a greater increase in the boiler plant by being speeded up. It can be "pushed" a great deal more than a smaller fan. By the installation of a large fan, which is operated at a low speed, provision can be made for future increase of capacity. More steam can be had at any time by opening the fan engine throttle a little

wider. Although a mechanical draught fan may be driven by belt, it is rendered much more efficient with a special engine direct connected to its shaft. It can in this way be rendered entirely independent of any source of power; it may be driven at any required speed, automatically regulated to the exact requirements of the fire, in such a manner as to speed up the fan when the boiler pressure falls from any sudden demand for increased steam consumption.

The steel plate construction of these fans, the comparative lightness, the portable character, and the absence of any heavy foundations, permits mechanical draught to be applied in a simple and thoroughly effective manner to most modern steam boiler plants. Being portable, it is also salable and is therefore an asset of real value, as compared with the chimney. It may be used for either forced or induced draught and can be placed in almost any unoccupied space. It may be operated by direct-connected or belted engine or motor, and can be so proportioned and operated as to produce any desired draught pressure.

The determination of the proper size of fan to be used for mechanical draught, whether of induced or forced system, requires a careful consideration of the different requirements and conditions of the plant to be equipped, and this determination requires a considerable knowledge of fans and the best and most economical methods of handling air by means of them. Many installations of mechanical draught have been made in this country, both in connection with mechanical stokers and economizers, and this method of draught production is now so well established and has been so thoroughly tested that it stands to-day as the acknowledged substitute for the tall chimney.

Note.—We are indebted to the McEachern Heating and Ventilating Co., of Galt, Ont., for the use of the cuts illustrating this article.—Ed.

#### NEW METHOD OF DYEING WOOL BLUE.

The new way of dyeing indigo on wool, writes the "Hatters' Gazette," is described in one of our foreign exchanges. Raw, uncleaned wool is stratified in a vat with powdered indigo. The bottom and top layers must both be of indigo, and the layers of wool must be uniform. About 1 k. indigo is required to dye 24 k. wool dark blue. The whole mass is next covered with a solution of carbonate of potash, 2 per cent. Be., which must be poured on warm, but not too hot. The wool is then thoroughly worked, so that it may be completely soaked with the liquid. The vat is then kept warm for a week, the wool being frequently turned during the period; the oftener that is done, the better will be the result. Nothing then remains but to rinse and dry the wool. The remaining liquid can be used to dye light blue, or light blue may be dyed from the first by using less indigo. All expense and loss of weight from cleaning the wool is avoided, and the color is said to be as permanent and as beautiful as can be obtained with woad.—Dyers' Bulletin.

#### AN ALTERNATIVE FOR RUBBER.

According to the Gummi Zeitung, Dresden, since 1901, a new elastic material has been manufactured in a factory near Ghent, in Belgium, on a large scale, which is being used in many technical articles. It consists of a mixture of hairs, which are prepared in a special way. This material, which is called trichopiese, has become well known on account of its strength and its almost indestructible elasticity. It seems to be of special use to lessen the shock caused by the start-

ing or stopping and general vibration of engines, railway and tramway cars. It may also be advantageously used in laying railways, as it not only diminishes the noise of the trains, but is said to preserve the rails. It does not easily deteriorate, and on account of this and the qualities above mentioned, it is widely used for door fillings and telephone cases. The new material has been put to a test of high pressure, in which it showed not the slightest trace of deformation, returning to its previous condition on the removal of the pressure. All those interested in the manufacture of trichopiese are therefore assured that the new material will in time become an effective alternative for felt, rubber, and other elastic materials, which are exclusively used for the manufacture of certain articles. The prices for the latter are, indeed, lower, but the durability of trichopiese is considered to be better than that of other materials. There is a special sanitary advantage in the use of trichopiese for mattresses, cushions, quilts, etc. The trichopiese used as a filling for these things can easily be taken out of the cover, whilst the cover itself can be aired and disinfected and quickly pulled over the trichopiese again.

#### HAIR ROPES OF THE HEBRIDES.

The most useful gift a St. Kildan girl can make her fiancé is a horse-hair or a human-hair rope. The rock-scalers of the Hebrides value a good rope of this kind, forty or fifty feet in length, more than the cowboy does his pet lariat. A thousand dollars offered for one of these ropes has been refused. This was not surprising, as the egg-hunter's life often depends on the quality of his rope. The usual rope is a stout hempen cord wrapped with sheep's wool, over which is a lining of horse hair and finally strands of human hair. The manufacture of such a rope is the work of years, but the St. Kildan girl saves her hair combings religiously, and dries and bleaches the rough grasses of the wind-swept island. The grass fibres strengthen the cable, and the elasticity of the hair prevents chafing against the rocks. But accidents happen occasionally with the best of ropes. When the egg-hunter, dizzy with the thunder of the water far below and the clamor of the angry sea fowl wheeling about him, feels the sickening "give" that tells a sharp corner of the cliff is eating through the line, he must swing himself to a ledge. There, with the guillemots and razor bills to keep him company, he must wait until another rope can be lowered to him. If no ledge can be reached, the hungry waves claim their prey. No wonder the rock-scaler values his hair rope. A charitable woman saved a trunkful of hair to send to the climbers of the Hebrides, but unfortunately the house caught fire and her three-years' collection was destroyed.

#### HAT INDUSTRY IN ITALY.

The town of Monza, in Italy, is remarkable for its manufacture of hats and caps. This town is situated about ten miles from Milan. It is the first stopping place for the fast service of the St. Gothard Railway, and is connected with Milan by three steam and by two electric tram lines. Statistics show that in the year 1818 the town possessed 37 hat factories, which gave employment to 286 workmen. In 1850 the number of factories had only increased to 40, and the hands engaged to about 300. In recent years, however, the most important firms have introduced machinery into their establishments, which has not only resulted in greater precision and finer finish, but has notably increased the output. The cost of production has also been considerably

diminished, due in a great measure to the utilization of waste wool. This waste wool is imported from France—from such centres as Tourcoing, Roubaix and Fourniens—and finds a good market in Italy. Monza produces very few silk hats, these being made in small quantities by hand at Milan and Alessandria. The goods are manufactured almost exclusively of fur or wool. Information is not at hand as to the precise number of hats and caps turned out annually, but the half-dozen better equipped establishments are probably capable of producing from 60,000 to 70,000 a day. These concerns use the most improved machinery and employ about 4,000 hands. Monza is not only successfully competing in the hat industry with the rest of Italy, but has become a formidable rival to similar manufacturing centres throughout Europe. Her products are exported to Central and South America and to some European markets, principally Roumania and the Balkans, where woolen hats are in demand.

Heretofore efforts made to increase the export trade have only been moderately successful, the lack of adequate machinery and the necessity of purchasing raw material from England and France having proved serious obstacles in the competition for foreign markets. The machinery working in the four largest factories now has a collective force of 2,500 steam and electric horse-power, but cheaper raw material is yet to be secured.

In Italy the hat industry in general is in a prosperous state, imports being limited to the higher-priced articles, which are supplied by the following countries: Austria, France, Germany and Great Britain.—Hat Review.

### FADS AND FASHIONS AS TO CLOTHING.

Back in the dark ages when men wore skins for clothes there was, in infinitely smaller ratio, a similar feeling in regard to the skin-clothing they wore and of course furs were popular, but the variety must have been a point over which various factions fought in order to decide which was the correct fashion. But circumstances had much to do with it, as much or more than it does to-day. Perhaps one ancestor told a friend or neighbor that he thought panther skin was about the finest going; the friend or neighbor in turn told another and each one endeavored to get a panther skin; then somebody appeared on the plain or seashore with the head and tail attached as being ornamental; immediately every man who could do so secured a similar skin with the head and tail attached, and thus the fashion grew. In summer, more than likely, furs becoming uncomfortably warm and habit demanding that some covering be worn, one bright mind devised a sheet of woven grass, which became the fashionable summer fabric, and it is much the same way to-day, only on a larger scale. We have hundreds of fabrics from which to choose, but if one man whose fancy and discretion chooses flannel, everybody in his set takes up flannel, and flannel is the fad of the hour; when flannel has become too common our criterion decides upon crash as being a little better than flannel, and immediately crash takes its place.

The question that has risen in the minds of men of fashion is, when will something new in the way of fabric be prepared for our clothing, particularly for fall and winter, which is now at hand. It was not many years ago when beaver was considered quite the thing for a winter suit, but to-day it is only seen in overcoats. Our fathers can remember when corduroy, under various names, was considered a very swell fabric, but you seldom see it now, except among the working classes or for special occasions.

### THE COST OF DYEING IN ANTIQUITY.

Dyeing in antiquity, says the *Deutsche Farber Zeitung*, was by no means cheap, and a very profitable trade, as appears from the ancient manuscript writings of Greeks and Romans that have descended to our times. The dyestuffs were exclusively of vegetable or animal origin, mineral dyestuffs being unknown, and colored earths, such as ochre, were not used for dyeing tissues or yarns. Red was dyed on wool with litmus, kermes, or madder, yellow with saffron and roots of the lotos tree, blue with woad, black with nutgalls. Each dyer handled only one color, and were thus dyers named accordingly. The most expensive and most elegant color was purple, and the dyers and dealers in purple did a large business. The color was obtained from the animals of the shells found in the Mediterranean Sea, *Buccinum* and *Purpurea*, which gave a red but fugitive color, when dyed with the juice of the animal alone without other additions, such as alum, and were made fast by combining the two principal colors of the shades, dark blue and red, from which then black, blue black, violet, and divers shades of red, were obtained by mixing in various proportions. The famous and most expensive fast dark red, or royal purple, samples of which have been handed down to our times through the past ages in museums, and partly in the ruins and tombs of antiquity, was obtained by combining the colors of the two shades. Violet or hyacinth purple was obtained by one dip in a mixture of dark blue purple dye and *buccinum* color, while the most valued Tyrian purple, dark red, or the color of curdling blood, was obtained by repeating the operation at least once. By adding water, urine, etc., to the juice of the shell, lighter shades, as heliotrope, mauve, etc., were obtained. The value of the dye was determined by the value of the material to be dyed, by the quality of the dyestuff according to the place of production, and according to the technical prestige of the place.

### RAFIA FIBRE FOR DRESS MATERIAL.

Rafia, rafia, or raphia fibre, one of the natural vegetable products peculiar to Madagascar, has long been known as an article of European importation, chiefly employed for horticultural purposes. It is, moreover, woven on hand-looms by the natives of the island into various fabrics, from the coarsest sacking to a stuff with the wool of white silk, so fine that it is used by ladies in Europe for dress materials. Some small quantities of one variety occasionally find their way to New York, under the denomination of rabanas, a striped, colored, medium quality, forming a unique and novel tissue for draperies and curtains.

### MOCHA SKIN GLOVES.

The skin of the mocha, a variety of sheep, native of Arabia, Abyssinia, and around the head waters of the Nile, is much used in the manufacture of fine gloves. In 1868 a large glove manufacturer of Johnstown, N.Y., made castor gloves, mostly from vat-liquor-dressed antelope skins. After the extermination of the buffalo, the supply of antelope skins was also greatly diminished, and experiments were made with various other light skins in order to find a suitable substitute. In 1877 two bales of skins of unknown variety were found with a shipment of Mocha coffee, shipped to Boston, Mass., from Hodeiah, a port on the Arabian side of the sea. They appeared to be haired sheepskins, and were sent to be dressed, and as they dressed out so well, a



Boston house was induced to import more. Two years later a New York importer sent an agent to Aden, in Southern Arabia, to collect these sheepskins. The name mocha came from the fact that the first bales came with mocha coffee, and as this name seemed as appropriate as any, it has continued in use.

### TO CLEAN COTTON WASTE AND POLISHING CLOTHS

Place the entire lot of waste to be cleaned into a large vat or copper vessel and introduce steam. The steam will to some extent loosen the oily substances. Then prepare a medium strong soda or potash lye bath and add a little soap to the bath. Soak the waste into the bath and let stay in the liquor over night, next morning boil for 1½ to 2 hours. After the boiling, fork the waste out and at once wash. The lye bath must not be too strong.—Chemical Trade Review.

### MADE IN CANADA.

In discussing the value of goods "made in Canada," the manager for Hachburn and Sheridan states, that in nearly all the ordinary lines of ready-made clothing buyers might obtain better value in selecting cloths manufactured in Canadian factories than in imported goods. He said that in the finer cloths there might be some preference given to English-made goods, the impression being that the dyeing was done better and that they had a better finish. But for the great bulk of suitings worn by Canadian men and boys, there was little room for argument in favor of the imported stuffs. He thought the Canadian public was coming to realize the worth of Canadian cloths, and that as a rule they selected goods on their merits, rather than on sentiment, prejudiced in favor of foreign articles.

### BEST AFFORDS MOST PROFIT.

A Montreal manufacturer in speaking of his experiences says: "At one time I represented a hat and fur house in the Maritime Provinces. I have one customer in Nova Scotia who would only buy the very cheapest lines I had. At last I adopted the plan of showing him my best goods, and, as he had got into the habit of giving me an order for a certain amount, I succeeded in selling him in this way some of my best hats. After a while he became convinced that there was no money in the cheap ones and he was surprised to see the demand there was for the higher priced article. Formerly he had never shown anything but cheap hats and when his customers wanted a really good article they probably sent out of town for it. He was afraid to go in for the finest goods and lost trade by it every day." All wholesalers agree that the majority of our merchants are gradually increasing their purchases of the finer goods which is evidence of the fact that they are educating their customers to the use of the best in preference to the cheapest.

### TWIST.

Twist is what makes possible the production of cotton yarn, as it binds the individual fibres into a compact thread capable of withstanding the strains of manufacturing. The amount of twist varies with the number of yarn. The rule that governs the quantity of twist is based on the fact that the diameters of the threads vary in the same ratio as the square root of their numbers. But it is not safe to adhere

too closely to the rule or trouble will follow. Especially in the carding room must the rule be sacrificed when by its observance bad work will follow. The same amount of twist cannot be safely introduced in roving when the cotton is of a harsh nature as when it is soft and pliable. Harsh cotton will not, under the most favorable circumstances, draw well, and twist will further retard the drawing. The twist must be reduced to the lowest possible amount necessary to hold the fibres together if the drawing is to be improved.

Reducing the amount of twist will not only improve the quality of the drawing, but will also increase the quantity of work turned off weekly. No matter what the quality of the cotton, and regardless of all theoretical rules, no more twist should be put in the roving that will enable it to withstand the strain of manufacturing. Under favorable conditions, the same lot of cotton can be worked with less twist than it can be under unfavorable conditions. This is one place where the skill and experience of the carder comes into play; to know when the conditions are favorable and reduce his twist in order to increase the production, and on the other hand to quickly recognize unfavorable conditions and increase the twist to prevent stretching or other evils.

The twist in roving is put in to hold the fibres together during their passage through the frames, and the twist put in by one frame is practically removed in the next. The final twist is put in on the mules or spinning frames, and it is of importance that each class of yarn shall contain the amount of twist best adapted to its use. Warp yarn contains more twist than filling yarn, and it is necessary that it receive the full amount of twist in order to enable it to withstand the strain of weaving. The extra twist in warp yarn binds the fibres firmly together and gives it a greater elasticity than soft twisted yarn possesses. The yarn is further strengthened by being sized so that all the loose ends of the fibres are bound to the body of the thread. The hard twisted smooth thread is strong enough to resist the chafing and straining of weaving and the elasticity imparted by the twist is of great benefit in enabling the yarn to resist the tendency to break under the sudden strain imparted during shedding. Filling yarn is not subjected to so much strain and chafing, besides, as its name implies, it is for the purpose of filling in. If it were hard twisted the short ends of the fibres that give it its fuzzy appearance, and which are so useful in filling in the interstices would to a great extent be absent. Furthermore, it would not be so pliable and the cloth would have a hard feel and raw appearance.—Wool and Cotton Reporter.

### A NEW PICKER CHECK.

To throw a shuttle fairly across the warp without injury to the filling carried in the shuttle, it should be started easily without a blow and moved with increasing velocity. When the highest speed is attained, the picker by which the shuttle is thrown should be checked and gradually arrested. To secure these results a new invention provides the shuttle-box with a tube closed at the outer end. In this tube a piston is placed, to the outer end of which is secured the picker-check, which is perforated and slides on the picker rod. A tensile spring is connected with the picker-check and the end of the shuttle-box, so that when the picker-stick strikes the check the piston is withdrawn, forming a partial vacuum in the tube, thus arresting the stick. The spring returns the piston to its starting point again, a small vent being employed in the tube for this purpose.



### A NEW AUTOMATIC LOOM.

A new automatic loom for reducing the labor cost of weaving appears already to be stimulating the inventiveness of British machinists. Several ingenious attempts to transfer from the weaver to the machine the task of changing the shuttle and restarting the loom have recently been brought under public notice by different makers of textile machinery in Lancashire and Yorkshire, but none of them contains greater promise of practical utility than a self-shuttling loom, put upon the market by William Dixon & Sons, of Blackburn. A representative of *The Manchester Guardian* says: "In its general outlines it closely follows the ordinary type of Lancashire loom; it has a loose reed, the picking is done from above the sley (instead of from beneath it as in the American looms), and the crank arms are as long as in any ordinary loom, thus leaving plenty of room for all the shafts necessary for weaving such goods as satens and drills. Like all other English automatic looms, it changes the shuttle, and not merely the web in the shuttle, when a fresh supply of web is required; and this change is effected not when the loom is running at full speed but during a momentary pause. It was running—weaving a common shirting with ordinary Blackburn warp and web in a dry atmosphere—at 210 picks a minute, and the shuttle-changing mechanism was working with absolute smoothness and precision. The loom will, it is understood, cost about £16 for the 40-inch size, and the cost of converting ordinary Lancashire looms will be about £9 each. The inventors are two Blackburn men."

### AMPHIBOLIN.

An article on waterproof non-inflammable composition in a contemporary brings to notice the name of a substance with which we are not familiar, namely, an earth called Amphibolin. It is stated that this is a natural earth which, so far as is known, is unlike any other earth, and is found only on a property near Raden, Germany, belonging to a Dr. Hamann, who gave it the above name owing to failure to identify it with any known substance. It has the characteristic that when once it has been mixed with water and allowed to dry it will not mix again with water. A material of this nature would be invaluable in some departments of the rubber manufacture. The waterproof non-inflammable composition recommended for textile fabrics is as follows: Thirty-four parts of amphibolin, 9 parts of size or other gelatinous material, 2 parts of chrome alum, and 2 parts of sulphate of ammonia, the whole being thoroughly mixed with 53 parts of water. The proportions of the various substances in the composition would, however, be varied according to the nature of the material to be treated. The composition is applied either by a brush or by means of a priming machine. One coat or several coats of the composition may be applied to the material, and after each coat the material is exposed to light. When additional waterproof qualities are required, a coat, or more than a coat, of the composition may be followed by a coat, or more than a coat, of chromated size or gelatinous substance dissolved in water, the material being exposed to the action of light after the application of each coat. There is nothing, of course, novel in the use of the chromated size or gelatinous substance, but apparently a very large quantity of this earth can be satisfactorily used with a small quantity of the material employed to hold it together.

### FUR MARKET OF LEIPZIG.

Nearly the whole fur trade of the world concentrates itself in the two cities of London and Leipzig; but as about two-thirds of the London furs, which are sold at auction, go to Leipzig, the result is that the fur market of Leipzig is really the greater of the two. The Leipzig warehouses receive raw and half-prepared furs from Siberia, European Russia, America, Australia and China, making the business of the fur exchange worth from \$15,000,000 to \$17,000,000 yearly. The chief article of import is the raw Astrakhan from Bohara, which comes via Nizhni Novgorod, this product reaching an importation figure of about 1,000,000 skins, each of which is worth from \$2.06 to \$3.35. With the cost of tanning and dressing added, the value of this trade amounts to from \$3,000,000 to \$3,500,000. The second most important division of goods includes sable furs, of which about 50,000 skins, each worth from \$50 to \$100, are imported yearly. Of fox skins, nearly 30,000 pelts are tanned and dyed yearly. Lamb skins average about 1,000,000 per year. Formerly, Leipzig handled annually about 4,000,000 Russian squirrel skins, which were bought mostly in England; but as the fashions of long-fur garniture on ladies' dresses disappeared, the demand was reduced to 2,000,000 pelts. The tails for boas are mostly imitations of martlet and sable tails. The sale of the pelt of the white fox in this market amounts yearly to about \$500,000, which is about the whole available product of the world's markets.

### FREEING DYEHOUSES AND BLEACHING ROOMS FROM STEAM.

Much has been written on this subject, and all sorts of complicated and costly arrangements have been proposed which are either total failures or produced an effect which bore no proportion to the expense incurred. The only plan of any real value is to warm the room to be freed from mist and steam. Double doors and even walls, with the internal space packed with a non-conductor, have been tried at great expense, and expensive stoves and heating pipes have been used, with ventilators in the walls just below the roof to afford an exit for the steam. All these contrivances fail, or only partially succeed, because they are based on an imperfect comprehension of the true principle. Now, every dyehouse and bleaching house has drying rooms attached to it, and to save transport, as near to it, as possible. The air in these drying rooms has to be constantly renewed, if the drying room is to deserve its name. We have here the solution of the problem, viz., to supply the dye or bleaching house with air which has passed through the drying room. Exhausters may be employed to draw the hot air from the drying room and to discharge into the dyehouse where holes in the wall, close up to the roof, permit its escape into the open air. It does not matter in which direction the air passes through the drying room, i.e., whether the exhauster takes the air from the top of the heaters or at the bottom, or vice versa. This method answers perfectly, and the expense attending its adoption is very small. Even if the drying rooms are at a little distance a suitable flue will bring the air from them with very little loss of heat.—Richard Kunzel in the *Leipziger Farber Zeitung*.

—Rugs, mats or carpets can be cleaned thoroughly by generously sprinkling on them yellow cornmeal that has been well dampened in clean soapsuds or weak ammonia water. Sweep off in a few minutes.

### THE PEARL BUTTON INDUSTRY.

In the matter of the manufacture of pearl buttons the centre of activity has shifted from the China Sea to the river towns of the Mississippi. Altogether unknown in this region a dozen years ago, this industry has grown to such proportions that it now employs the services of thousands of people, and the output has become so great that it materially affects the button market of the world.

One day about twelve years ago a German button maker of the name of Boeple wandered into Muscatine from the Old Country. He saw for the first time the mussel shells of the Mississippi river. He examined them closely and expressed the opinion that they were good material for buttons. Up to this time soft-water shells were considered impracticable for any such use, and authorities on the subject were naturally skeptical in regard to Boeple's opinion of their usefulness. He persisted in claiming that the "nigger-head" mussel from the waters of the Mississippi river would make, if properly handled and finished, the finest pearl buttons yet produced. He took some specimens to the factories at Waterbury, Conn., and after considerable experimenting one concern there determined that with some changes in their machinery the shell of the strange mussel from the "Great Father of Waters" would make a button to compete with the best of those from other parts of the world.

The process of making the shells into buttons is interesting. The shells are first cut up into blanks the exact size the buttons are going to be; then they go to the grinder, a machine which grinds the black back off of them; after that to the facing machine, which cuts the face on them; next to the backer, which bevels the back; then to the drill, which puts in the eyeholes; from here they go to the polishing room, where the glossy finish is put upon them; after that they are sorted, put on cards and boxed up. A great many of the factories do not make the complete button, only doing the preliminary work. Such places are called "blank factories." Muscatine is where the industry originated and where it has flourished to the greatest extent. There are about forty factories there, and the amount paid out weekly in wages is \$10,000. There are factories in Davenport, Fort Madison, Burlington, Philadelphia, New York, Quincy, La Grange, Canton and many other points. The industry has developed to such proportions that many thousands of people are employed and millions of buttons are turned out daily. The button market of the world has been affected by the Mississippi shell to such an extent that prices are now fully 75 per cent. cheaper than they were a few years ago.—Press.

### LUBRICATION IN TEXTILE MILLS.\*

The most practical method of making a selection of lubricating oils is by an actual trial upon the machines to be lubricated. While it is selected upon a comparative basis, a determination as to lasting quality does not necessarily signify that the oil is the best to use. Sometimes, in changing oils and depending upon operators for a decision as to their comparative value, a wrong impression is made by the action of the new lubricant upon the deposits left by the old oil. This deposit in working out is very often charged up as belonging entirely to the latest lubricant, and a report is made to that effect. Lubricants should be selected upon a

\*Abstract from a paper by W. F. Parish, read before the New England Cotton Manufacturers' Convention.

basis of what they will do upon actual work toward reducing the frictional item to its lowest point. They should also be selected with an additional end in view; that the frictional item should remain practically a constant, i.e., the lubricants should not vary in quality, nor deteriorate during use, nor leave any deposit. It is impossible to more than generalize in regard to what special lubricants should be used for a textile mill, as the mechanical condition of each plant is a factor which will make it impracticable to treat all mills exactly alike.

Openers, scutchers, and cards are the heaviest and most important machines used in the ordinary manufacture of cotton or woolen goods. The best of care is used, in setting up these machines, that they may be in perfect alignment, and that all bearings may be true and to centre. To keep the bearings in this condition attention to lubrication is absolutely necessary. Fires in blowing rooms are also frequently caused by lack of attention to lubrication. Oils should be fed by cups or bottles to all bearings that are taking the main work of the machine, and should be heavy and somewhat quick in action. They should also be able to show clear in color after use. Drawing frames should be treated with heavy lubricants. The top rolls require an especially heavy, greasy lubricant that will preserve a good wearing film for a considerable period. A compounded oil, an animal oil, or fat, should not be used for top rolls, owing to the general tendency of these oils to oxidize and gum, thereby retarding the free movement of the roll, and producing an uneven output.

Apart from the spinning frame, no other class of machinery claims so much attention from the lubrication standpoint as looms. It is not power-saving but "stainless" quality that is required of a loom oil. It is a generally acknowledged fact that no oil is stainless in the exact meaning of the word, for it must be borne in mind that all oils are dark-colored to start with. A "stainless oil," or an oil that is white or nearly so, is manufactured by a bleaching or filtering process that takes out certain hydrocarbon qualities that are essential. This bleaching process leaves the oil rather characterless. It will turn black after use, carrying with it iron in solution and iron in particles, evidences of lost power through abrasion; and it will damage any goods with which it comes in contact. Straight animal oils should not be used owing to their tendency to oxidize. Upon the loom, instead of a light-colored, light-bodied oil that shows black after use (a good indication that its lubricating power is very low), a greasy, heavy oil should be used, one having the essential characteristic of staying where it is put—not necessarily a sticky oil but one of body. The color should not be considered.

It was stated some years ago with the advent of the Rabbeth or bath type of spindle that a so-called light-gravity oil was the best to use for economizing power. Some go better than the light-oil theory and use an oil too light, working entirely from a gravity standpoint, thinking that the lighter the oil the easier the spindle will operate. Black, worn spindles, and large renewal bills, with a constant expenditure for power consumed by abrasion, is the usual result of such practice. An oil to be a good spindle lubricant must have other characteristics besides light gravity. It must be homogeneous in character—that is, so constructed that it will not change in lubricating value from oiling to oiling; the power to drive spindles must not increase as the oil wears until just before the renewal of the oil it is taking a great deal more power than absolutely necessary. The oil must be strictly neutral, and absolute freedom from material

that will gum and attack the metal is necessary. Moisture in a spindle oil produces a brown rust; acid will produce rust and attack metal. Mule spindles, if new, may be treated the same as the lighter Sawyer or open spindles, by using two oils—one for the bolster and one for the steps—or one oil weighty enough for the bolsters may be used all around. If the spindles are worn badly, as is the case in most old machines, the extra bolster oil is almost a necessity. Twister spindles and heavier spindles of bath types should be treated the same as the regular bath spindles, if power is being considered. The only change, owing to the extra weight of the spindles, would be to oil up more frequently; where this is not done an oil heavier in nature must be used.

The general lubricant for dyehouse machinery should be of a heavy character; the older and more worn machinery the heavier the oil. Washing machines and dryers come under general lubrication, except the artificially-heated bearings, which require an extra stocky oil, in order that the working heat may not bring the body of the oil below the requirements of the machine. The cost of the oil should never be considered in selecting lubricants, since a reduction of 7 per cent. in the total horse-power of a mill through frictional losses will usually pay for the entire oil consumed. Three per cent. saved will more than offset any increase in yearly cost from the very cheapest oils to the most expensive adapted lubricants.

### MANUFACTURERS' ASSOCIATION.

Among the new sections of the Canadian Manufacturers' Association, recently formed, two are of interest to the textile trade. They are as follows:

Cotton Section.—Chairman, A. F. Gault; vice-chairman, James Crathern; secretary, E. H. Cooper; committee, D. Morrice, Jr.; R. R. Stevenson, Col. Henshaw, H. S. Holt, A. A. Ayer.

Hat Section.—Chairman, Robert C. Crean; vice-chairman, Mr. Guillet; secretary, R. J. Younge; committee, E. P. Gordon, J. C. Baker, J. E. Molleur, S. A. Agnew, J. A. Patsons, C. W. Meakins.

## Foreign Textile Centres

Bradford.—Pending the London sales, many operators held aloof, and most of the business done was in crossbreds, some buyers being willing to make forward contracts at the rates then ruling. Lower class crossbreds were sold at about 20 per cent. above the prices made at the last London sales, many buyers feared that a further advance might occur. Medium crossbreds had an upward tendency and the finest descriptions were firm. Merinoes maintained their position, but it was less easy to obtain 2s. for good 60's, Botany tops, than was the case at the time of the last London auctions.

Belfast.—The demand in this linen market is fairly well sustained, but there is no increase in new business. The buying continues of a sorting-up description, and, with prospects of easier rates after the new year, no expansion in current orders is looked for. The spinning branch is steady and unchanged, orders are small but fairly numerous, lower prices being quoted for January delivery. Otherwise, there is no alteration. The manufacturing end keeps up to a fair average, a good deal being done in a quiet way. White goods

for the home market are sluggish. On shipping account the volume is keeping up, and prospects are considered fairly bright.

Dundee.—Trade is without change. Jute values oscillate 5s. per ton—from £13 10s. to £13 15s. for firsts, but on the whole are rather firmer, especially for best qualities. Yarns are without material change. For 'heavies, there is a fair demand. Quotations are 1s. 5d. to 1s. 5½d. for 8-lb. common cops; 1s. 6d. to 1s. 6½d. for warps, and 1s. 8d. for good yarns.

Kidderminster.—Buyers still act cautiously, and orders are, perhaps, disappointing in size, but the demand is a general one, from many markets and for all classes of carpet. On the whole, the outlook for the manufacturer is much brighter, except that the advance in materials will leave but a narrow margin of profit. The yarn market is, so irregular and upset that quotations are not worth reporting. Locally, spinners are busier, but there is a marked inclination to avoid contracts at present prices. Manufacturers have lost considerable ground since 1900, both in home and foreign markets. There is a general impression, however, that the somewhat startling advance in the price of wools at the London and Liverpool sales, especially of those counts which enter into the manufacture of carpets, will have a stimulating effect upon the carpet trade. No doubt many manufacturers are fairly well covered with their wool contracts, and will be able to execute orders on the books without any difficulty, but with a definite advance of ¼d. per lb. on worsteds, those houses which have been backward in placing the whole of their spring orders may have to face higher quotations for carpets a little later on.

Leeds.—The cloth warehouses have been doing a fairly large winter trade. Rainproofs hold the lead, but fashionable season suitings have an average sale. The clothing factories are better employed, especially in the measuring department. The position of wool is not such as to induce cloth merchants to place spring repeats in advance, but as a rule the mills are fully engaged on sample orders. The finer classes of spring fabrics are firm with an upward tendency. Good orders have recently come to hand from Canada for next winter's material. Australia is quiet, but there is a fairly large business in piece-goods and ready-mades with South Africa.

Leicester.—The yarn market is strong with heavy deliveries, under old contracts, and new business is offering with much greater freedom at the full advance. A very active business is passing in the hosiery industry in choice and medium fabrics. Specialties and fancy goods sell with great freedom at very firm rates.

Manchester.—There has been considerable enquiry for cloth, but export business was impracticable owing to rates offered. An advance in raw material stood in the way of transactions. Home trade was more satisfactory. Printing cloth was firmer. In raw cotton the closing week of November is the usual time for estimating the crop. The yield may now be put at from 11,500,000 to 11,700,000 bales. Prices have been strong, but the Textile Mercury says they should now fall to a range of from 3½d. to 4½d., though the speculative element may carry them ¼d. higher. The yarn market is quiet, business being evidently held over, awaiting lower prices.

Nottingham.—Lace and curtain yarns are in steady request, but there is no buoyancy in the demand, and prices are not quotably altered. Buyers of hosiery yarns are placing orders more freely. Prices of merino, cashmere, and other

wool yarns are higher all round, and in some cases the higher quotations stop business. The brown net trade is unaltered. Business in the fancy lace warehouses is active; the hands are all well employed, and there is a scarcity of experienced machinists in the making-up branches.

Rochdale.—The spell of cold weather had infused rather more life into the flannel trade, but some merchants declined to buy beyond current needs, in view of the impending stock-taking. Merchants have kept their stocks low, and should consumption increase, they will have to buy. Though quiet, the market is decidedly firm.

South of Scotland.—In the linen trade English business continues slow, warehousemen receiving no orders, and consequently they will not buy at any price. The Glasgow trade, however, is in a better position, the reports being more encouraging than for a considerable time past. Nothing worth speaking of is going to the United States, except stock lots, though the Dunfermline end of the trade is very brisk. The linoleum and floorcloth trade is in a brisk and hopeful condition.

### A TALK ON WOOL.

The members of the biological section of the Canadian Institute were instructed beyond expectation by a lecture on "Wool," given in the Institute building, Toronto, on the evening of the 1st inst., by Wm. Algie, Proprietor of the Alton, Ont., woolen mill. Among the audience were a number of visitors interested in the textile trades.

Prof. Coleman, the president, in introducing the lecturer, referred to the delightful entertainment which Mr. Algie had given the members last summer on the occasion of their visit to the Dale nurseries at Brampton in which he is interested.

In opening his lecture Mr. Algie said:

The Biological student (and I make the statement subject to correction), no matter to what eminence he may attain, is always "a student" while memory and perception hold their seats. Mark Twain once stated that he always admired honesty, but could never find time to practice it personally; and in the world of Biological research, I must plead the same excuse, much as I am in love with this work.

I can imagine no more delightful and restful pursuit than getting close in touch with Mother Earth, and finding kindred in all the children of Dame Nature. 'Tis true that, to a limited extent, my boyhood days were partially spent in practical biological study. My father had an acre of land which he devoted to the raising of vegetables and roots, and in my memory there is framed a picture of a boy armed with a hoe and a pail of Paris green solution, industriously exterminating Colorado beetles and weeds, whose names were unknown to the boy, but whose existence he could not ignore. Consider the delight in the practical study of biology, by the aforesaid boy, clad in a pair of blue overalls and a striped cotton shirt, barefooted and bare-armed, mopping the perspiration from his soil clad face, and thinking continuously of the "old swimming hole" where his more fortunate companions were disporting themselves in the cool waters; or, perchance, were seated on a favorite log beneath a sweet scented cedar, fishing for sinners, chub and an occasional speckled trout. These recollections sadden me even at this late day, but my trials had their compensations. I had the satisfaction of eating my share of those potatoes and vegetables that had brought sorrow to my tender heart. But the roar of wheels and buzzing of spindles for thirty long years have been my daily companions. Occasionally I

get a glimpse of the enchanted castle in which you live. My connection with the Dale Estate gives me an opportunity, at least once a week, to get in touch with one branch of your work, and I gather fresh energy for my grinding occupation, as a manufacturer, from the thousands of buds and blossoms who speak to me in a language I am beginning to understand more and more as time records the flight of years.

Before taking up the subject of this paper, permit me to quote from an eminent American writer, a few words that, to my mind, best describe the man whose heart and brain are attuned in harmony with the universe, and who, in his daily life, receives, records and adds to the strength of every vibration in life's chromatic scale from the atom to the star. In describing such a man the writer says:

"Nature's countless hands were sowing seeds within his tropic brain. All sights and sounds—all colors, forms and fragments—were stored within the treasury of his mind. His thoughts were moulded by the graceful curves of streams, by winding paths in woods, the charm of quiet country roads, and lanes grown indistinct with weeds and grass—by vines that cling and hide with leaf and flower the crumbling wall's decay—by cattle standing in the summer pool's like statues of content.

"There was within his words the subtle spirit of the season's change—of everything that is, of everything that lies between the sumnering seeds, that, half-awakened by the April rain, have dreams of heaven's blue, and feel the amorous kisses of the sun, and that strange tomb wherein the alchemist doth give to death's cold dust the throb and thrill of life again. He saw with loving eyes the willows of the meadow-streams grow red beneath the glance of spring—the grass along the marsh's edge—the stir of life beneath the withered leaves—the moss below the drip of snow—the flowers that give their bosoms to the first south wind that woos—the sad and timid violets that only bear the gaze of love from eyes half closed—the ferns, where fancy gives a thousand forms with but a single plan—the green and sunny slopes enriched with daisy's silver and the cowslip's gold. As in the leafless woods some tree, a lone wit's life, stands like a rapt poet in the heedless crowd to spoil this man among his fellowmen.

"All there is of leaf and bud, of flower and fruit, of painted insect life, and all the winged and happy children of the air that summer holds beneath her dome of blue, were known and loved by him. He loved the y'low autumn fields, the golden stacks, the happy homes of men, the orchard's bending boughs, the sumach's flags of flame, the maples with transfigured leaves, the tender yellow of the beech, the wondrous harmonies of brown and gold—the vines where hang the clustered spheres of wit and mirth. He loved the winter days, the whirl and drift of snow—all forms of frost—the rage and fury of the storm, when in the forest, desolate and stripped, the brave old pine towers green and grand—a prophecy of spring. He heard the rhythmic sound of nature's busy strife, the hum of bees, the songs of birds, the eagle's cry, the murmur of the streams, the sighs and lamentations of the winds, and all the voices of the sea. He loved the shores, the vales, the crags and cliffs, the city's busy streets, the introspective, silent plain, the solemn splendors of the night, the silver sea of dawn, and evening's clouds of molten gold. The love of Nature freed this loving man."

From the cloud capped peaks of poesy I must now descend to the smoke obscured valley of industrial every-day life, and endeavor briefly to do justice to the subject you have so graciously placed in my hands. I ask in advance

your forbearance for any blunders I may make, because, in the nature of things, as a manufacturer, I may possibly wander from my text to spin a yarn or two by way of illustration.

(Concluded in next issue).

### LITERARY NOTES.

The thirtieth issue of the American Textile Directory (formerly Babcock's), has been published for 1902-03. As we have already mentioned, this directory, established in 1870, has been greatly improved under the new proprietorship, and the present handsomely printed and bound edition makes a volume of 469 pages, 7 by 10 in. It gives the capacity and products of the cotton, flax, hemp, cordage, woolen, silk and other textile mills, with the hat factories, bleachers, dyers, finishers and cloth printers; also the commission merchants and wholesale dealers in these various fabrics, and dealers in raw textile materials. The territory now covered by this directory is the United States, Canada, Mexico and Central America, also the new dependencies of the United States. The price prepaid to all countries is \$5 per copy. Published by the American Directory Co., New York.

Over seven pages of the December number of Industrial Canada are taken up with an illustrated sketch of the woolen industry of Canada. Although the ground has been frequently traversed in the Journal of Fabrics, this resume is a useful and timely reminder of the present position and the future possibilities of the woolen manufacturing business, and will no doubt be put before our tariff makers.

The annual wool review for 1902, prepared by the National Association of Wool Manufacturers of the United States, has been issued in pamphlet form. It gives a large mass of statistical and other information on the drift of the wool trade; and one of the instructive features is a graphic diagram of wool prices in the United States since 1890. The secretary of this association is S. N. D. North, Essex Building, Atlantic Ave., Boston.

In wealth of illustration and variety and character of contents, the Christmas number of the Century Magazine surpasses all its predecessors. A short notice cannot describe it. It has to be seen to be rightly valued. Apart from the material appropriate to Christmas, the editorials on "The Workingman's Right," and "A Lay Sermon," and the paper by Prof. Hewett on labor questions ought to be widely read by all laborers and the employers of labor. The history of the steel trust is also instructive.

The Delineator announces that the scope of the magazine for the new year will be widened, and new material has been introduced into all the departments. Mrs. Margaret Hall begins in the January number a series of Practical Talks to Young Housekeepers.

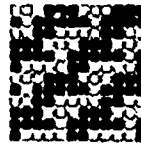
The cover of the Christmas number of the Canadian Magazine represents an Indian chief, with rifle in hand, gazing solemnly at a train passing over the distant prairie. The editor writes intelligently of "People and Affairs," as does John A. Ewan, in his comments on "Current Events Abroad." The last of Miss Dent's astronomical papers on "Our Winter Skies," appears in this number. The illustrations are hardly up to the standard of the articles. Pleiades, for instance, is represented as a group of three stars. Several Christmas stories and sketches make this a good souvenir to send to friends abroad.

We have received from the Department of the Interior at Ottawa a map of Canada recently issued. It embraces

all the latest information respecting the topography of the country and is a most useful publication.

## Textile Design

### WOOLEN SUITING.



Complete Weave.  
Repeat 6x6

Warp: 4,200 ends, 12-harness straight draw, all  $3\frac{1}{4}$  run woolen yarn.

Reed:  $10 \times 6 = 70$  inches wide.

Dress:

- 1 end, orange,
- 1 end, backing,
- 2 ends, medium gray,
- 1 end, backing,
- 2 ends, medium gray,
- 1 end, backing,
- 2 ends, black,
- 1 end, backing,
- 1 end, black,
- 1 end, light blue,
- 1 end, backing,
- 2 ends, medium gray,
- 1 end, backing,
- 2 ends, medium gray,
- 1 end, backing,
- 2 ends, black,
- 1 end, backing,
- 1 end, black,

—  
24 ends repeat of dressing.

Filling: 60 picks per inch, same counts, colors and arrangement as used for warp.

Finish: Fancy cassimere finish, scour well, clip on shear; 56 inches wide.

### BROCKVILLE HAT WORKS.

The Union Hat Works, removed from St. John's, Que. to Brockville, were formally opened on November 21st, and are now in full operation. Saulnier, De Celles & Altman, the proprietors, are entitled to great credit for the energy they have shown, and the opening was an occasion of great interest. The public were afforded not only an opportunity of viewing the buildings, but also of seeing the process by which hats are manufactured, and of judging from personal observation of the quality of the materials used in their manufacture. Music was provided, with a speech by G. P. Graham, M.P.P., and a dance in the evening, and the proceeds, contributed by visitors, was divided between the two hospitals in the town, Saulnier, De Celles & Altman adding \$75 to the amount, which figured up over \$300 in all.

The Union Hat Works were established thirteen years ago at Truro, N.S., and it was not long before the increasing business made it necessary to move to a more central location. St. John's was selected as an advantageous point, and the plant on its removal to that town was greatly enlarged. The advance in the business was so great that it was decided to seek a still more central location, as a large

amount of the company's business is in the western part of Canada, and it is steadily increasing. Brockville was offered the works in consideration of a bonus, but the ratepayers voted it down. It was submitted a second time and carried, and the buildings were proceeded with at once. They stand beside the G.T.R. and are only a few hundred feet from the C.P.R. The main building is 100 by 45 feet, three stories high, not including the basement. It is of brick and well lighted. The view from the upper portion of the building is pleasant. On the first floor are the office, the shipping room, the paucing room and the fanning room, equipped with all the necessary and requisite machinery. There is also the blowing room and the mixing room. The boiler room, which is to the rear, is 40 by 25 feet. The second floor contains the trimming, the blocking, the curling and hat box making departments. Above the boiler room is the drying room. On the third flat is the finishing room, the stock room, bath rooms and clothes room. A frame building, 75 by 35 feet, contains the making, the blocking and the coloring room.

The building is lighted and heated by electricity, a big dynamo in the basement supplying the current. The irons are all heated by electricity, and the machinery works automatically. The engine is located in the basement, and is 85-horse power.

There are engaged in the works about 125 hands, and the business points to a large increase in the near future. The day the works were opened an order was received for 500 dozen hats. The works are only making soft hats at the outset, but hope in the near future to manufacture hard hats as well.

## Among the Mills

*Co-operation is one of the guiding principles of industry to-day. It applies to newspapers as to everything else. Take a share in "The Canadian Journal of Fabrics" by contributing occasionally such items as may come to your knowledge, and receive as dividend an improved paper.*

The felt works at Perth had to be closed for a few days on account of the scarcity of coal.

Chas. Dickeson has recently taken charge of weaving at the Gillies Woolen Mill, Carleton Place.

The Canada Woolen Mills, at Hespeler, are again in operation, after a week's shut down, to put in new machinery.

The Clyde Woolen Mills, Lanark, have started up after a week's shut down for general repairs. C. P. Grierson is manager.

Seaforth has passed a by-law to loan John Dick, of Toronto, \$10,000 to operate the woolen mills at that place, which have been closed. The vote in favor was 368 to 10 against.

A siding has been built from the C.P.R., at Elora, to John McGowan's linseed oil and oil cake mill. The mill has a capacity of thirty barrels of oil and about fifteen tons of cake per day.

A small strike occurred at the Eagle Knitting Mill, Hamilton, on November 20th. Several of the cutters quit, owing to a different system of arranging the work, which had been introduced by a new foreman. They claimed that they were unable to make as much money under the new system. The foreman, on the other hand, claims that they can when they have got accustomed to it.

The dyeing at the Boyd Caldwell Co.'s mill at Appleton is in charge of George Ashman.

The Hosiery Co. at Collingwood was obliged to close down recently, and send its employees home on account of having no light, the electric plant requiring some alteration. At the busiest season of the year this caused some inconvenience.

The Mill Properties Company, Limited, has become incorporated with a capital of \$25,000, to take over the Cotton Mill property at Dundas, and bring new industries there. The buildings south of the creek will be occupied by Park & Morison, who are moving from North Toronto, and will operate a mill for the manufacture of wool stock.

A fire broke out in the Ashburnham Woolen Mills, the property of William Faint, on Saturday night, November 15th. It originated in the picker, which was full of fine pieces of wool and refuse, and the machine had ignited this. Though only smouldering when discovered, the mill was filled with dense smoke. The blaze was extinguished before the fire brigade arrived.

The new Hewson woolen mill, at Amherst, N.S., is making rapid progress. The main building is up, and no time will be lost in installing the machinery. In addition to the mill proper, there will be a power house, 40 by 40 ft, and a picker room and dye house, 40 by 60 ft. Automatic sprinklers and other fire protection devices will be provided, and the whole equipment will be up-to-date. A large amount of the very best machinery is being brought from the United States.

The Canada Woolen Mills, Carleton Place, are installing Apperly feeds on the finishers, and doubling the brakers. Wm. Shaw, of Montreal, has been lining up the mules. James H. Hendry, the new manager, has made a number of improvements in the short time he has been there. He is a thoroughly practical mill man, having been designer and superintendent of some of the leading wool and worsted mills in the United States, and has been connected with some of the best mills in Canada. The capacity of the two mills is twelve sets.

In the list of new buildings erected at Guelph during the past season, published by the Mercury, the following appears: Guelph Worsted and Spinning Co., corner Queen and Cross streets, new factory, two story brick, 64 by 134 ft., with stone basement, engine and boiler house, 40 by 40 ft. Architect, Colwill; contractors, D. Kelcher and Taylor Bros., J. Hughes, R. Stewart & Co. Cost, \$12,000. S. Carter, Royal Knitting Co., new two story brick factory, 34 by 90 ft., with stone basement, on Norwich street. Contractors, S. Rundle, D Young. Cost, \$4,000. Guelph Waterproof Clothing Co., refitting new premises, corner Huskisson and Surrey streets. Cost, \$400.

Judge Langelier has given judgment in the case of J. Morm v. the Dominion Cotton Mills Company. The plaintiff claimed \$380 damages for having had the first finger of his right hand crushed between two cylinders, and afterwards amputated, while he was working in the service of the company. Morin had been instructed to attend to the wringing of pieces of cotton, a work in which he had no experience, and the cylinders having commenced to revolve just when he was placing the cotton between them, his finger was caught, with the above result. The court held that the operative in charge of the cylinders should have made sure that Morin heard the warning that the cylinders were about to be put in motion. He did not do so, and consequently the company must be held responsible. Judgment was given in favor of plaintiff for \$260.

The woolen mill at Hunterville is to be closed.

King's elevator, at Port Arthur, is being fitted with flax cleaning machinery.

The Thoburn flannel mill, Almonte, has recently installed a new warping machine.

Parker & Co. have taken out a permit to build an extension to their dye works in Toronto.

The Waterloo, Quebec, knitting mills have to work overtime in order to keep pace with their orders.

The Rosamond Woolen Co., Almonte, has thrown out all its old looms and installed Knowles looms.

The Parisian Laundry Co. has let a contract for a building, at Hamilton, to cost \$10,000. It will be 55 by 115 feet with a wing 30 by 40 feet.

The employees of the Anchor Knitting Mills, Almonte, gave a ball to their friends recently, and it is their intention to have a weekly dance during the winter.

Smith & Baker, manufacturers of gloves and mittens, will take possession of the can factory, at Dundas, when the latter moves into the old cotton factory.

Clifford King, an employee of the Cornwall cotton mill, St. John, N.B., had one of his hands so badly injured that he was taken to the hospital, and it is feared he will lose his thumb.

The property of the Western Canada Woolen Mills Company, at Medicine Hat, has been purchased by a local company, who will hold it pending the starting of some suitable industry.

The new factory which Emerson & Hague, tent and overall manufacturers, Winnipeg, have had under construction this year, is approaching completion, and will be occupied in a few weeks. It is of brick and stone.

Chatham, N.B., is trying to secure a number of new industries employing 25 or 30 hands each. Among those spoken of are a skirt and pants factory and a woolen mill. The board of trade is working the matter up.

J. Stewart Skeaff has been appointed administrator of the estate of the late Wm. Mitchell, proprietor of the matting factory, at Cobourg, and the works will be operated for the benefit of the estate, under Mr. Skeaff's direction.

Newton Bros., woolen manufacturers at Sarnia, have sold their mill machinery to John F. Morley, of Dundas, who, as already intimated in *The Journal*, has started a new industry, manufacturing fine felt goods, such as felts for piano covers, etc.

N. J. Armour is at the head of a company which will erect a factory at Hamilton, for the manufacture of linen and light fancy articles. The building will be a three-story brick, 120 by 55 feet, with an annex 40 by 30 feet. About 100 hands will be employed.

Louis Silberman and Harris Silberman, hat manufacturers, of Quebec, have filed declaration that they intend carrying on business as merchants and hat manufacturers, at Quebec and elsewhere under the name of The Canadian Hat and Cap Manufacturing Company.

The following is stated to be the present position of the cotton industry in Canada: Taking all the companies together, they have 792,496 spindles and 18,679 looms. There are two mills closed, one at Brantford and one at Coatcook. These two have 22,164 spindles and 530 looms. Deducting these, there are in Canada 770,322 spindles and 18,129 looms.

Hamilton capitalists are being worked up to take an interest in the proposed hat factory there. Many years

ago Hamilton had a large and prosperous hat factory, and how it went to the wall is a matter of history. There is now the Meakins factory, but there is room for another, as most of the men's hats worn in Canada are imported.

The appeal of the Puritan Laundry Co. against the judgment allowing Annie Wooster \$2,000 damages for the loss of her hand, was successful in cutting \$500 off the amount of damages. The decrease is based on the ground that the action comes under the Workmen's Compensation Act, by which \$1,500 is the highest damages that can be awarded.

A foreman of the carding department of the Cornwall cotton mill at St. John, N.B., was recently discharged, and being very popular with his men they in sympathy with him quit work. This crippled the carding department and necessitated the carders of the York factory working overtime to supply the Cornwall mill with material for manufacture. The matter was after a few days arranged satisfactorily, and the regular order of things resumed.

The Hewson Woolen Mills are erecting at the rear of their new mill at Amherst, a terrace 135 feet long, consisting of six two-story seven room houses for their employees. These houses will be fitted up in comfortably up-to-date style, and heated with steam from the mill. This firm has offered prizes to the Maritime Stock Show for the sheep producing the best wool for the manufacture of tweed. The prizes will be \$10, \$8 and \$5.

J. Wallace & Sons, Hamilton, have installed an automatic sprinkler and steam heating system in the new cotton mills of the Hamilton Cotton Co. An automatic sprinkler outfit has also been installed by the same company in part of the plant of the Canadian Colored Cotton Mills, at Hamilton, and another large contract just completed by Messrs. J. Wallace & Sons was that for a continuous automatic fan system for the Imperial Cotton Co., Hamilton.

The Gibson cotton mill and other industries at Marysville, N.B., have been taken over by an incorporated company, called Alexander Gibson, Limited, with a capital of \$5,000,000, divided into \$3,000,000 of ordinary stock, and \$2,000,000 of preferred stock. The number of shares is 50,000 of \$100 each. The company will consist of the following, who are also provisional directors: Alexander Gibson, sr., Alexander Gibson, jr., of Marysville; John F. Stairs, Robert E. Harris and George Stairs, of Halifax.

S. T. Willett, woolen manufacturer, of Chambly, has won his suit against the Chambly Manufacturing Co., and has been awarded a sum aggregating \$9,247.75. The defendants have also been ordered to construct a crib the entire width of the river Chambly, to protect the dams, piers and other works of the plaintiff. This work, which is to be carried out in accordance with plans submitted by experts, and approved by the court, must be begun within fourteen days, and carried out without interruption until completion, the only delays allowed being those caused by high water or climatic conditions. In the event of the failure of the defendant to do the work, the plaintiff shall carry it out at defendant's expense. The judgment provides that if defendant appeals within fourteen days the delay for beginning the work shall extend until the decision of the appeal. The case has been a long time before the courts. The first judgment was in favor of Mr. Willett for \$5,419.75. On appeal to the Court of King's Bench this was increased to \$6,266.75. The Supreme Court affirmed this judgment, but based upon the report of experts the amount was increased to \$9,247.75, the addition being for further amounts for the cotton mill roadway, the head race island filling and other works.



The Canadian Rubber Co., of Montreal, has an output of 9,000 pairs per day.

The Eagle Knitting Company at Hamilton has been incorporated with a capital of \$300,000, to take over the Eagle knitting mills belonging to the estate of the late John Moodie.

The Anchor knitting mill, Almonte, recently added a set of 50 inch cards, which makes it the same as a five-set mill. It has been running some of its carding machinery all night.

Jonathan Ellis, of Port Dover, is the promoter of the new knitting mill at Hamilton, which will occupy the premises of the Howell Lithographing Co. The intention is to make high-class underclothing. The company, which has applied for incorporation, will start with \$100,000 capital as soon as possible.

A woolen firm in Almonte sent over to Leeds, England, some time ago for some weavers, who were to give instructions to others in the mill. Four girls decided to come, but their trip has proved a very sad one. On the voyage over they took ill. It is stated they came by steerage, and two deaths resulted after their arrival. Miss Marsh, one of the survivors, is in St. Luke's hospital, Ottawa, where she has had a severe attack of typhoid, but with care will recover. Her sister is in Almonte. She does not know of the death of her friends, and will not be told till she recovers.

Walkerton has voted bonuses to a hosiery mill and a bobbin factory. The hosiery mill is promoted by David Williams, who is to get a loan of \$5,000 to be repaid in 15 years, and exemption for 10 years. He is to build and equip a mill costing at least \$7,000, keep it in operation 11 months in the year and employ at least 40 hands. Mr. Williams now has a knitting mill at Collingwood, but finds it difficult to obtain help, as so many hands go on the boats in the spring. An inland town would not be open to that objection, hence the proposal to move. The bonus carried on a vote of 411 to 16. The bobbin factory bonus is to enable Ker & Harcourt, of Parry Sound, to return to Walkerton. It was stated in the last number of the Journal that they contemplated moving to Owen Sound, but Walkerton has since voted them a bonus. The vote was almost unanimous, yeas 424, nays 6. Negotiations are going on for the Rife woolen mill, and no time will be lost in moving the machinery from Parry Sound.

The Slingsby woolen mills at Brantford were badly damaged by fire on December 9th. The fire broke out soon after 1 o'clock in the afternoon in the carding department in the top story of the main building. The fire is supposed to have originated from some foreign substance getting into the cards. The top story, with its contents, and the roof were destroyed, but the spinning department on the second floor and the weaving department on the ground flat were saved, the principal damage to them having been done by water. The four smaller buildings surrounding the main building and containing the cotton department, picking room, store room and office were not damaged. After three hours' hard work the firemen conquered the flames, but their work was much impeded by the cold weather. The loss, which is estimated at about \$25,000 is covered by insurance to the amount of \$62,000, \$39,000 of which was on the top story. About 100 hands will be thrown out of employment till the damage is repaired. The Slingsby mills manufacture blankets, flannels, mackinaws and yarns. They contain 3 broad and 27 narrow looms, 2,480 spindles and six sets of cards. F. Cockshutt is president of the company, and Chas. W. Bates superintendent of the mill.

The Oxford Woolen Mills Co. have increased their capital from \$100,000 to \$150,000.

The Canada and Stormont mills of the Canadian Colored Cotton Mills Co. have installed 44 cards, new drawing frames, and two spinning frames.

Clark & Co.'s flax mill at St. Mary's was burned, Dec. 10. The workmen had just left for dinner and it is not known how the fire originated. The barns, shed and stacks were saved. Insured for \$1,000.

There are now, according to the statement of Mr. McPherson, manager of the Canadian Rubber Co., Montreal, six rubber factories in Canada. The one he represents is the oldest, and the Granby Co. the next.

On November 30th, 150 feet of the dam at Chambly Canton, Quebec, broke away and caused great damage to the Richelieu woolen mills. The mills have closed, and it is not known just how long it will take to make repairs.

Percy Hughes, a member of a carpet firm of Kidderminster, England, has been in Canada seeking a suitable place for a factory to manufacture tapestry carpets to supply the Canadian market direct. Hamilton hopes to secure it. The factory will employ from 500 to 1,000 hands.

Complaint is made that in some of the big factories of Canada the hands are wearing themselves out working overtime, some of them making more than their regular wages in excess earnings. The employers would rather have larger staffs in regular hours, but can't get the men.

Fred. McLaren, of D. K. McLaren, Montreal and Toronto, has just closed an order with the new Hewson Woolen Mills Co., of Amherst, N.S., for five complete sets of card clothing, first breaker intermediate and finisher to each set, 48 in. These are to be delivered in January, together with other supplies in the woolen mill line, such as shuttles, reeds and belting.

A device for measuring the length of fabrics has recently been patented by a German inventor, F. C. Stephan, of Crimmitschau. The apparatus consists of a graduated paper band or tape, which is automatically wound up with the cloth. A similar device has already been employed for measuring fabrics, but when used for very fine goods, such as silks, velvets, satins, etc., it was found that an impression was left by the strip, which often rendered delicate material's unsalable. This was mainly due to the fact that the tape was wound in superimposed layers. The new device obviates this difficulty by constantly changing the position of the measuring band.

Judgment has been rendered by Judge Britton in the case of Schiedell vs. Burrows. The action was tried at Berlin and was brought by plaintiff, a mortgagee, to restrain the removal of certain looms in a carpet factory at Breslau. The plaintiff had been owner of the mortgaged premises, and had used them for a shoddy mill, there being an engine, a boiler and shafting on the property. The defendant bought the whole, giving back a mortgage, in which the engine, boiler, etc., were specifically mentioned, and carried on a carpet manufacturing business, bringing in for the purpose seven looms. These were not in any way attached to the freehold, except by their own weight, but plaintiff contended that they were nevertheless part thereof by reason of their use, and from defendant's intention to make them so. It was held that there was no intention on the part of defendant that they should be so used as part of the carpet factory at Breslau as to render it necessary to use them only there. Held, also, that in these days, when frequent changes take



place in the construction of machines, when improvements are constantly made, and at great cost, in machinery of all kinds, the inclination of the court should be to relax, where possible, in favor of the owner of chattels rather than carry further, decisions giving to the mortgagee as owner of the freehold machines put in for trade purposes. The result might have been different if defendant had merely purchased the property with the intention of erecting a carpet factory, and without any machinery thereon being specifically referred to. Action dismissed with costs. Defendant to receive the \$400 paid into court. Defendant's claim for damages by reason of injunction reserved to be tried at some future time.

H. H. Burrows makes a statement in the Galt papers to show why his carpet factory was not successful in Galt. It will be remembered that the Galt people voted him a \$7,000 building, the cost of which was to be repaid in instalments without interest, on condition of his removing from Guelph to Galt. He states that the building was to be ready in February, but was not until May, so that he missed the spring trade, having at the same time a heavy stock of manufactured goods, partially ready for the market, on his hands. He says his samples were ready, and over \$7,000 worth of his best goods made up, calculating on making up the cheaper lines when getting started, so as to have a complete range for customers, but the delay, owing to the peculiar conditions of the carpet trade, meant the loss of a year's trade. The money put into the manufactured stock was borrowed from the bank, and was promised to be paid back as soon as the spring trade was over. He had paid out over \$3,000 in moving expenses and improvements, and not getting stock disposed of, he became short of working capital; but he claims he still had a surplus on June 30th of nearly \$4,000. He states further that he was disappointed in raising \$3,000 stock in Galt, which was promised. The bank was anxious for returns, and, while he was trying to raise money to meet their requests, Mayor Hawk took possession of the premises, and the council sold them to George D. Forbes. Mr. Burrows says that he was in the business for sixteen years before going to Galt. We understand there are eight brothers in the Burrows family, seven of whom are in the carpet business. Two brothers from St. Thomas came over and offered to form a new company to take over the factory, but it had already been sold to Forbes. The machinery is being removed back to Guelph.

### MORE ABOUT WOAD.

Woad was used long before indigo came into Europe, not as a solvent, but as a dye. Woad contains no indigo ready formed, and not the slightest trace of any blue color can be detected in it. With water it forms a dark-brown mixture, which colors woolen fabrics olive green. In order to dye with woad, all that is necessary is to pour boiling water on

it and keep it in a well-covered vessel for 15 or 20 hours at a temperature of about 110 to 140 degrees F., not going above 150 degrees or below 100 degrees F. In about 13 to 14 hours bubbles of gas begin to rise. A very small quantity of slacked lime should then be added, and woolen articles allowed to remain in it for an hour or two change from yellow to blue, as they are taken out and exposed to the air. When the vat is in full working order the liquid is of an olive-brown color, on the surface of which darker veins appear which change their position, slowly moving, appearing and disappearing spontaneously. The froth which at this time gathers on the surface of the vat is blue, from the indigo precipitated by contact with the atmosphere. This constitutes the caeruleum spumam Ruellius speaks of as being dried and sold to painters. It was also the flowers of the woad, which the dyers of Coventry were accused of skimming off the woad vats in which they dyed their customers' goods and added to those vats in which they dyed their own. It is interesting to note, if a skein of wool be suspended in a small experimental vat in good working order, that it is the upper part of the skein nearest the surface which takes the deepest color, and next to it, as one would have imagined, the lower part nearest the sediment at the bottom. This blue scum was the probable source not only of the woad blue, which Pliny speaks of as being used in his time to stain chalk for the adulteration of indigo, but also of the ancient Briton pigment, of which we hear so much and know so little. Caesar and Pomponius Mela speak of our ancestors staining their bodies blue. It is difficult to understand how they could dye their skin blue, but it is easy to see how they could have smeared themselves with woad blue mixed with oil or grease. Herodian, however, throws a little more light on the subject when he tells us that "they mark their bodies with various figures of all kinds of animals, which is the reason they wear no clothes, for fear of hiding these figures." The use of indigo for tattooing is still common among soldiers and sailors.

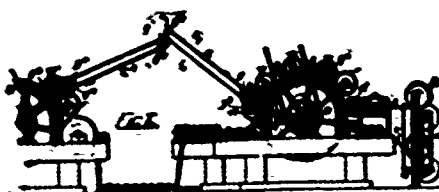
—The mill man who thinks for himself is the manufacturer who will stand at the top.

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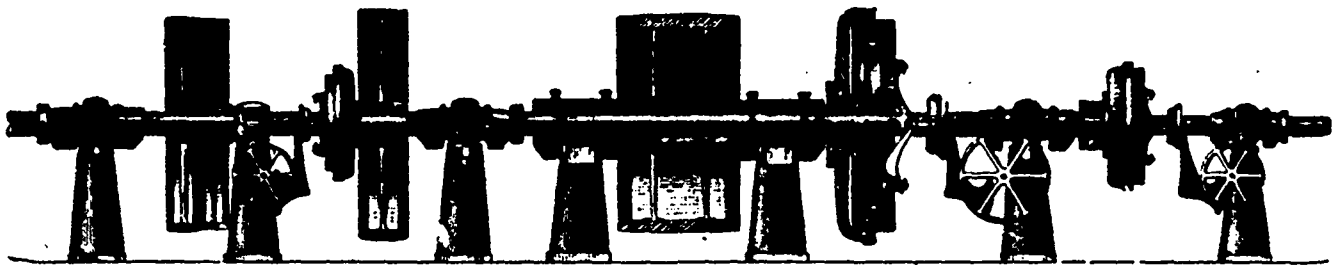
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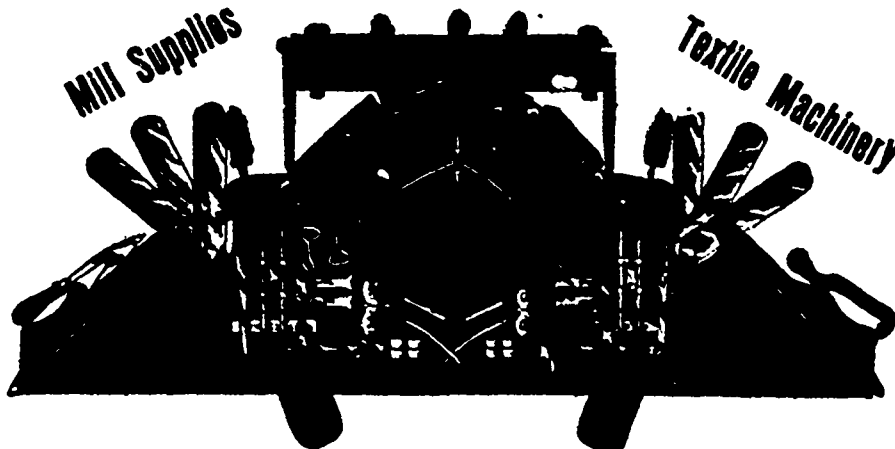
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—Of the 600 weeds and grasses growing in the North-west, it is estimated by those who have made a study of it that sheep will eat 576, horses 82 and cattle 56.

—Brilliant pyroxyline is the technical name for a line of trimmings made of wood fibre, commonly called wood silk. These trimmings are very handsome and are more durable than the filmier materials.

—Great Britain supplies the greater part of the bleached and unbleached cottons for Persia, although similar products of Russian and Dutch origin are making considerable progress. Woolen goods, being higher priced, are much less used, and form an article of luxury. The principal market is found in the north of the country where the winter is much more rigorous than in the south. Austria and France share the market with the British.

**TEXTILE PUBLICATIONS.**

In order to accommodate readers of The Canadian Journal of Fabrics, the publishers will be pleased to mail any book in the following list on receipt of the publisher's price, duty free. Books on technical and practical subjects, not in this list, can be obtained and mailed at publisher's prices. In ordering, please give full address, written plainly:

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- Sulphur flour ..... 1 70 to 2 00
- Sulphur roll ..... 1 90 to 2 00
- Sulphate of copper ..... 5 50 to 6 00
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- Bich. potash ..... 0 7½ to 0 08
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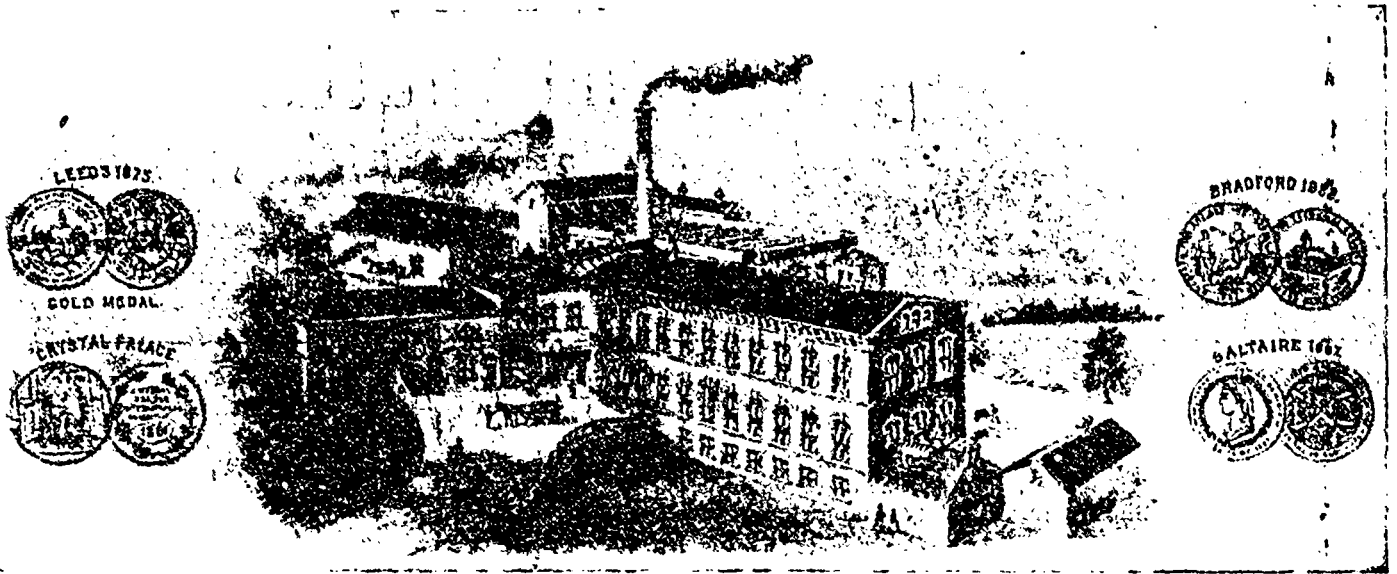
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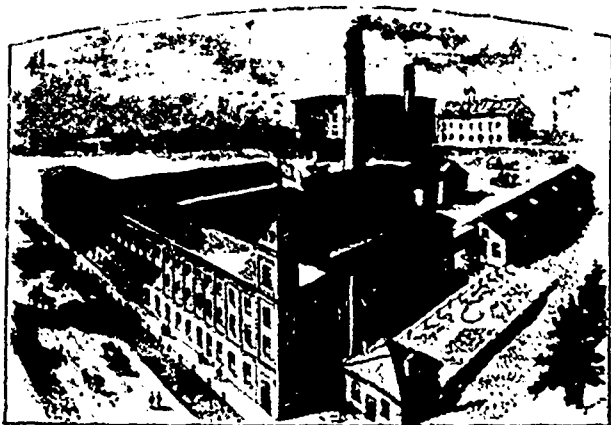
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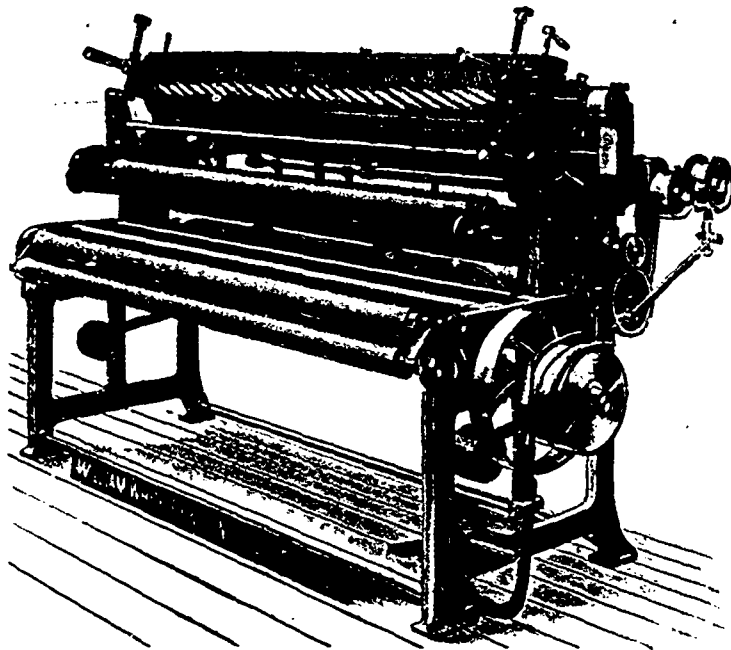
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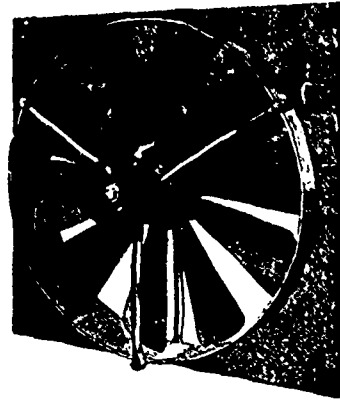
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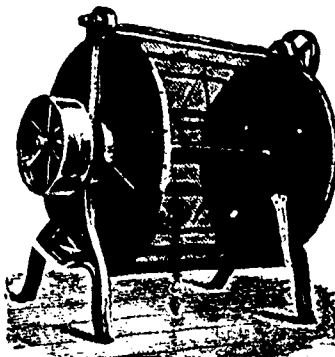
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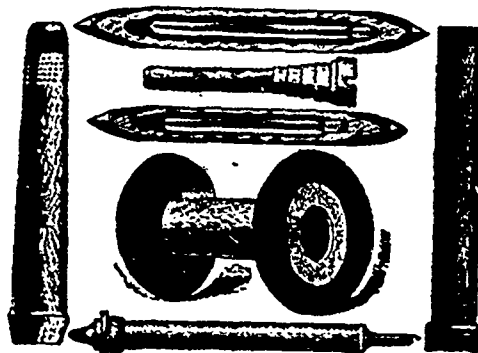
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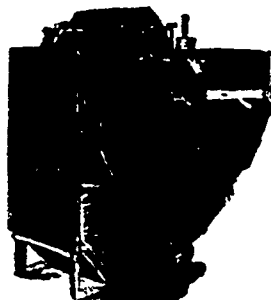
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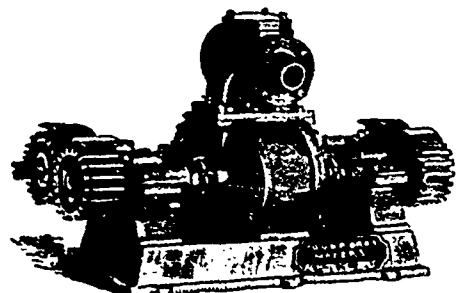
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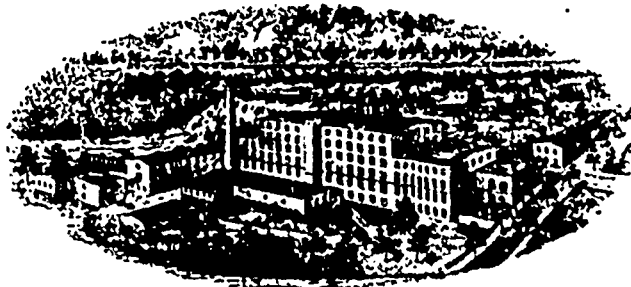
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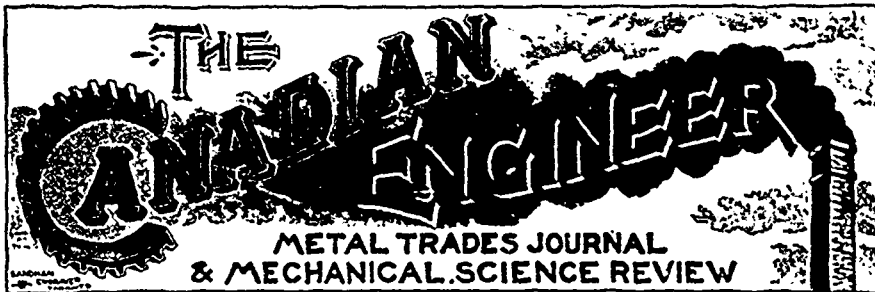
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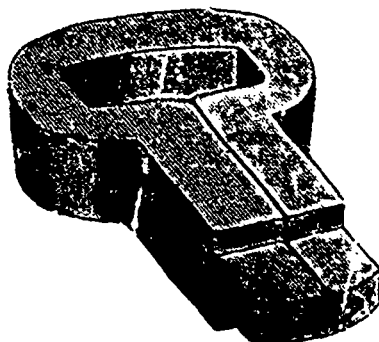
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### WOOL MARKETS.

At the London wool sales, which opened on the 25th November, prices for merinos ruled in average 5 per cent dearer, the improvement being most pronounced on better conditioned parcels, while the results obtained for faulty and drought stricken shipments are not materially in excess of those current in October. Fine crossbreds in the grease commanded an advance of 10 per cent, and medium and coarse growths 20 per cent. On scoureds and slipes, however, the rise was not quite so pronounced. South African wools were quoted from par to 5 per cent dearer, the different descriptions comparing with October closing prices, as follows: Super snow white,  $\frac{1}{2}$ d per lb dearer, snow whites and scoureds,  $\frac{1}{4}$ d per lb dearer; fleece washed, par to  $\frac{1}{2}$ d per lb dearer, grease, light conditioned,  $\frac{1}{2}$ d per lb dearer, grease, inferior and faulty, par. The attendance at the sales was large, and the competition spirited. Wool is beginning to arrive for the first series of the 1903 sales, which will open January 20th.

The United States wool market is comparatively quiet. Climatic conditions have been rather unfavorable to a large attendance of buyers, the mills are well stocked for their immediate needs, and the time of year has arrived when manufacturers begin to think more about taking account of stock and balancing their books for the year, than about enlarging their purchases of wool. The outlook is regarded favorably by everybody interested. It is impossible to effect concessions in price; if the contrary were the case, there would very likely be a large speculative movement in wool, as many traders are such firm believers in the permanent strength of prices as to warrant the belief that there would be good sized purchasers at something under the present quoted figures. As it is, the speculative spirit is conspicuous by its absence. When the stocks get a little lower, provided nothing unforeseen occurs, the trade may be willing to pay higher prices than they have yet paid to replenish their warehouses. The only thing that occasions any uncertainty in the minds of the trade regarding the immediate future of the market, is the use of substitutes.

In Toronto the market is stronger, in sympathy with the recent advance in coarse wools in England. There has, however, been no advance of any importance yet, either in fleece or pulled wools, and there is not likely to be till the advance in England has proved its permanency. The stocks of domestic fleece are now pretty well sold out. There are only a few lots left in the province. In fleece the offerings are light. The market is rather firmer. Local dealers are quoting 14 to 15c. for washed and  $7\frac{1}{2}$  to 8 $\frac{1}{2}$ c. for unwashed. For pulled wools there is a moderate enquiry from the home mills, and the market is steady. Local dealers are quoting 18 to 19c. for extras, and 14 to 15c. for supers.

**Montreal Wool Market.**—Since our last report the sixth series of the London wool sales have been going on, opening with an advance of 5 to 10 per cent. on all Cape and Australian merinos, medium crossbreds, 10 to 15 per cent, and coarser, 20 per cent advance. These prices have been maintained all through the sales, which closed on the 5th inst. Owing to this advance, Montreal markets have shown only hand to mouth buying, although there is no likelihood of prices getting lower, but on the other hand higher, when stocks in hand of manufacturers get exhausted. Quotations are: Cape, greasy 17 to 18c.; B.A., merinos, 35 to 40c.; crossbreds, Australian, 17 $\frac{1}{2}$  to 25c.; Canadian fleece, 14 to 15 $\frac{1}{2}$ c.; North-West, 14 $\frac{1}{2}$  to 16 $\frac{1}{2}$ c., according to quality and condition.

In Winnipeg the market is nominal.

### CARBONIZATION.

Wool has adhering to it various impurities which will have a detrimental effect on the fabric unless they are removed. Of all the impurities burrs are the more plentiful; the others consist largely of bits of vegetable fibres, straw, leaves, grass, small seeds, and a small proportion of excrement that has assumed a hard cell-like form. The burrs may be partly removed by burring rollers, but it is not possible to completely separate the wool and burrs by mechanical means. In the manufacture of shoddy it was found impossible to separate by mechanical means the cotton and wool fibres contained in the same rags. A chemical process was discovered by means of which the cotton fibres were dissolved without injuring the wool. The product is called wool extract to distinguish it from shoddy, manufactured by mechanical means, from worsted rags, or mungo made from felted woolen fabrics.

The process is called carbonization, and is adapted to removing burrs and vegetable substances from wool or woolen fabric. There are several ways of carbonizing wool and woolen fabrics without injury to the fibres, if proper care is exercised, and the claim is freely made that the process, when properly conducted, adds strength to the fibres. The two most common methods of carbonization are to treat the fibres with a solution of sulphuric acid, or with a solution of chloride of aluminum. The first essential is to remove all grease by a thorough scouring. The sulphuric acid will liberate the fatty acid contained in the grease left on the wool, and this acid will become fixed on the fibres, and fill up the joints of the serratures. The acid released from the grease of imperfectly scoured wool is *not* in sufficient quantity to fill up all the joints of the serratures, but sufficient to impart a smoothness to the fibres that partially destroys their felting qualities.

After the wool is thoroughly scoured and while damp, it is saturated with a two per cent. solution of sulphuric acid which has a great affinity for water. The saturated wool is spread in the dry room which is heated to 250 degrees F. The heat evaporates the moisture from the wool and the burrs and other vegetable fibres absorb the acid solution which converts them into carbon. The wool is then washed, during which process the carbon residue of the burrs is washed out. After washing the wool is put in the hydro-extractor and the moisture, including the decomposed acid solution, is removed. The solution of chloride of aluminum process invented by a Frenchman named Joly consists of about a three or four per cent solution with which the wool is saturated. It is then put in the hydro-extractor, after which it is put in the dry room. When well dried it is put into the carbonizing room and subjected to a heat of about 212 degrees F. for about three-quarters of an hour. During this time the solution carbonizes the vegetable matter, which with the solution is then removed by washing in water and Fuller's earth. This is the simplest and safest method and is the one generally employed. The vegetable matter may also be removed by subjecting the wool to the fumes of muriatic acid in an air tight room for three or four hours at a heat of not less than 212 degrees F.—Wool and Cotton Reporter.

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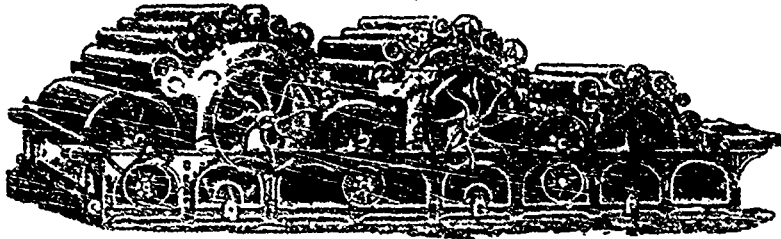
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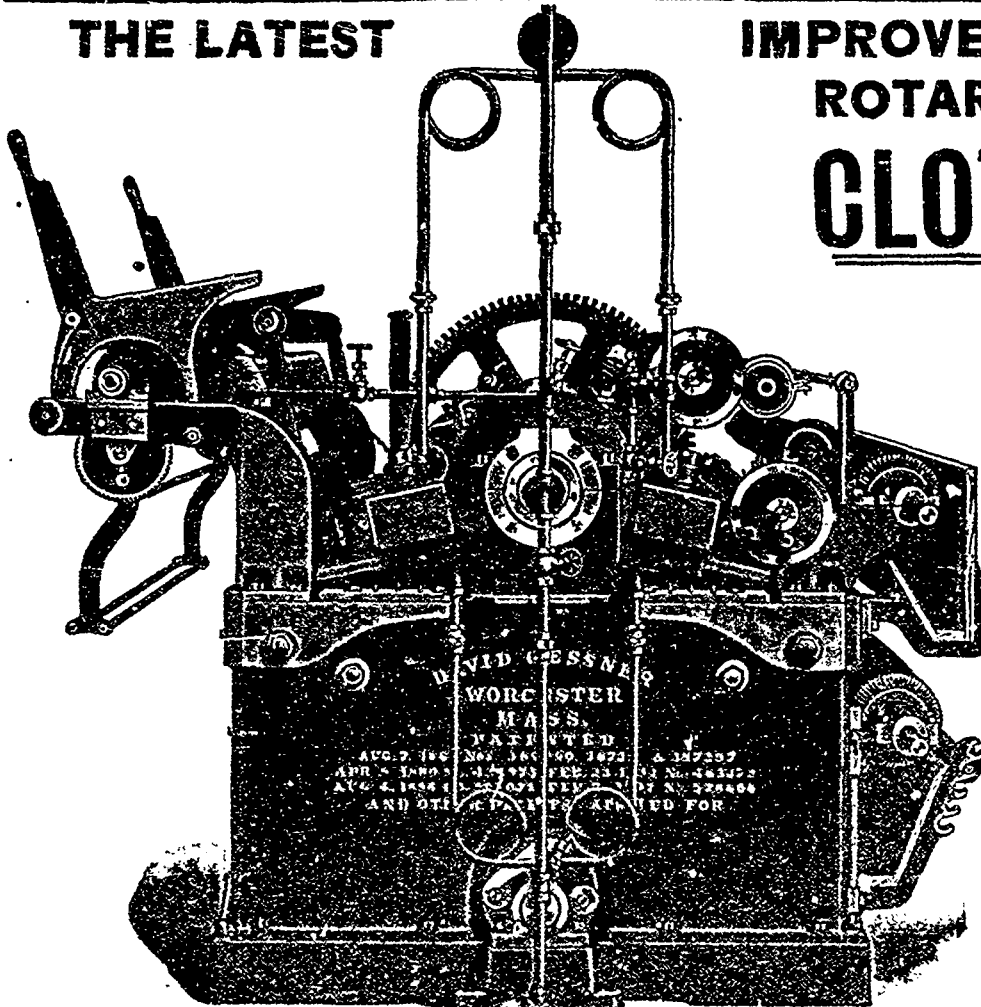
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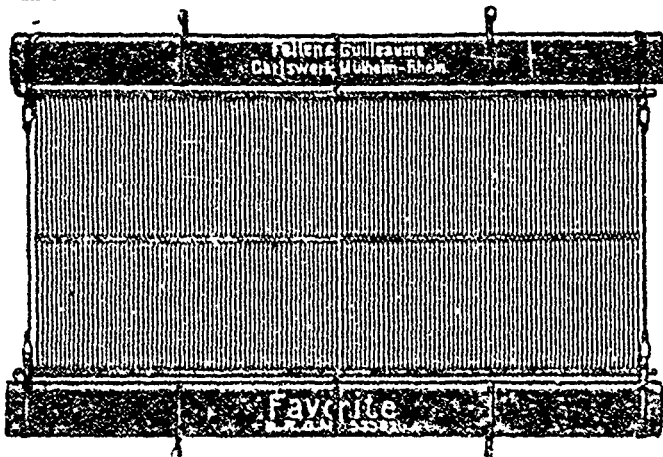
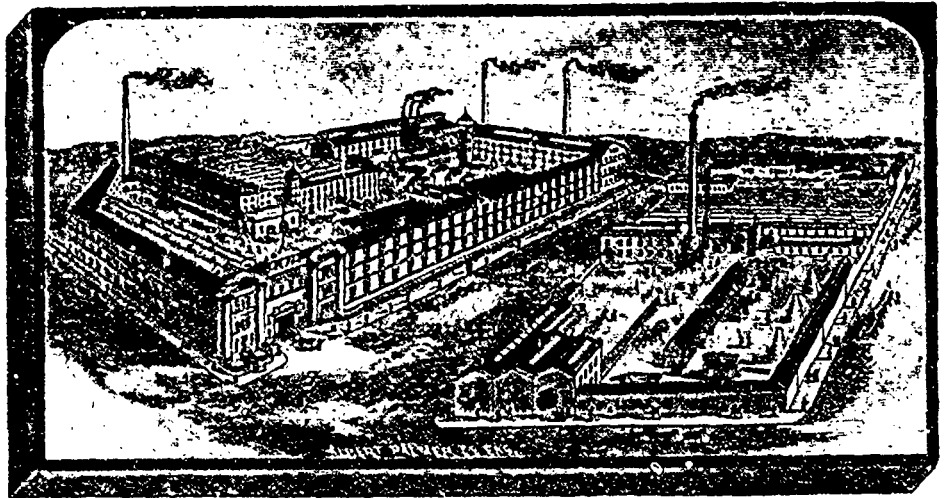
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