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# CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, MARCH, 1897

No. 3

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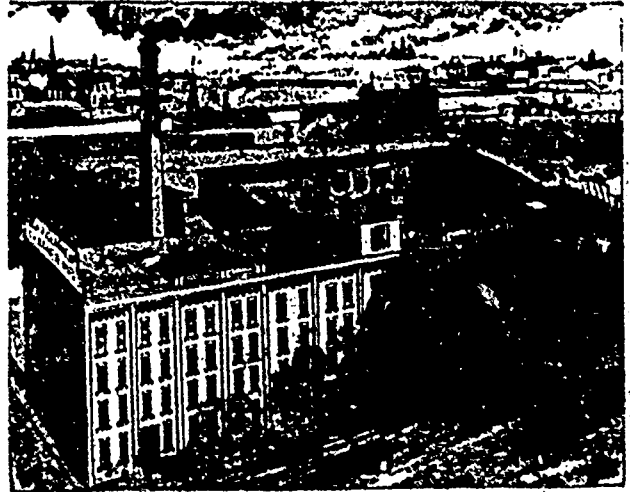
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# CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, MARCH, 1897

No. 3

## Canadian Journal of Fabrics

A Journal devoted to Textile manufactures and the Dry Goods and kindred trades.

Subscription: Canada and United States, \$1.00 per year. Great Britain 5/- . Advertising rates on application.

Offices: 62 Church Street, Toronto, and the Fraser Building, Montreal.

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Agency in Europe: Polsuo Brcs., 30 Poppin's Court, Fleet St., London, Eng. Toronto Telephone, 1392 | Montreal Telephone, 2589

Business correspondence should be addressed to Montreal; but cuts, news items and editorial correspondence to Toronto; cuts from abroad should be sent by post wherever possible, not by express; changes of advertisements should be in our hands not later than the 10th of each month to ensure insertion.

### THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures of Canada, with lists of manufacturers' agents and the wholesale and retail dry goods and kindred trades of the Dominion, to which is appended a vast amount of valuable statistics relating to these trades. Fourth edition now in hand.

Price, on and after publication, \$3.00. Subscribers ordering in advance are given a discount of \$1.00.

BIGGAR, SAMUEL & CO., Publishers,  
Fraser Building, Montreal.

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## Editorial

### Cheap and Nasty.

Not long ago we were shown some samples of flannels which were being offered in Toronto by an English firm, duty paid, for eighteen cents a yard. The finish was excellent, the colorings good, and the pattern, a fine check, seemed very desirable. Those "all wool" flannels contained about as much wool per pound as a crow's nest. They were apparently cotton one way, dust the other, and very little of either. No one need trouble to manufacture a line of these flannels for the Canadian market, for anyone who got hold of them once would not wish to handle anything at all resembling them again.

### London Wool Sales.

The second series of wool sales opened March 9th. The market was quiet, and the prices unchanged from the closing rates of the last series. Merinos were easy, and cross-breds firmer. There was a good attendance of bidders at the second day's sale. There were offered 13,441 bales of average quality. The bidding was animated, and especially on the part of American and French operators, the former of whom bought freely of good grades. The home trade took a fair proportion of the cross-breds offered at unchanged prices.

### Good Wine Needs no Bush.

There are two ways of meeting competition, either by improvement in quality or by reduction in price. The benefits of competition have been loudly preached, and they have been very evident indeed in those cases in which the stress of competition has evolved improved processes and enabled the manufacturer to place better materials at the service of the public without advancing their prices. But little advantage can be derived from competition which drives the producer to the employment of poorer stock in manufacturing his goods, and which causes him to invent and employ new processes only to enable him to foist his inferior wares upon the public. At the present moment the craze for cheapness threatens to carry even our most conservative manufacturers with it. But they should think twice before beginning a battle in which defeat is certain. There are lines of woolen goods which our Canadian mills can make of as good quality and finish as any in the world; but they are not the cheapest lines, and they never can be, for our mills cannot afford the equipment necessary to manufacture fine-looking cloth out of absolute rubbish, as our German and many of our English competitors do. As we cannot command the market where the demand is for cheapness, why not retain command of it where the demand is for honest goods of good wearing qualities?

### Vanity.

W. A. Murray, Ltd., have recently been the means of many of the Toronto women's getting bargain dry goods, and many more serious bodily hurt. St Paul struggled at Ephesus with wild beasts, but there were no bargain sales in those days. What is the difference between strangling a man in an alleyway and taking articles valued at ten dollars from him for nothing, and putting out a woman's eye with an umbrella handle and obtaining thereby articles valued at one dollar for ninety-seven cents?

**TEXTILE TRADE WITH BRITAIN.**

We give below a summary of twelve years of textile exports from Great Britain to Canada, compiled from the British Board of Trade returns. We may explain

	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1895.
Raw wool .....	36,958	32,276	18,317	10,153	26,914	24,173	25,035	21,623	22,310	14,317	16,312	13,210
Cotton piece goods	629,195	634,158	620,378	499,230	494,752	404,417	420,005	453,017	515,711	431,259	447,919	421,157
Jute piece goods ..	.....	.....	.....	.....	92,278	91,444	106,811	114,140	137,860	99,040	98,057	151,808
Lin-in piece goods..	145,287	153,242	178,039	149,116	181,249	138,343	142,527	177,047	139,406	111,637	142,597	135,254
Silk broad-stuffs ..	24,186	287,672	7,501	17,521	6,710	3,433	3,876	.....	.....	.....	.....	.....
" ribbons .....	10,485	8,338	7,097	3,893	1,788	496	538	.....	.....	.....	21,842	7,638
" laces .....	.....	.....	.....	.....	.....	.....	.....	53,381	41,080	32,023	.....	.....
" mixed goods ..	63,929	98,540	74,149	70,822	54,974	34,985	44,136	67,438	70,990	41,788	35,234	27,232
Woolen fabrics ....	642,347	703,306	6,6424	532,691	497,132	336,417	335,792	386,163	343,977	255,525	228,875	255,511
Worsted fabrics....	465,820	599,485	626,710	488,418	640,824	518,354	588,581	637,042	661,949	473,573	551,454	519,445
Carpets ..	183,979	216,329	240,910	186,993	221,291	171,860	206,695	201,405	227,607	162,113	166,450	153,582
Apparel and slops ..	240,000	260,397	227,080	291,904	331,285	346,568	377,408	395,676	338,691	298,305	351,059	343,901
Haberdashery ....	*507,217	480,699	535,946	436,683	432,940	373,201	401,684	394,754	252,483	144,647	148,370	150,911
*Estimated	2,959,403	3,222,517	3,212,551	2,694,424	2,982,037	2,443,691	2,653,088	2,900,716	2,751,464	2,054,527	2,208,169	2,179,653

that the item of haberdashery for 1885 is an estimate, and that the recent changes in the classification of silks prevent us from giving full and correct returns. The January returns will be found in another place:—

**THREE-PHASE TRANSMISSION.**

**DESCRIPTION OF THREE-PHASE TRANSMISSION PLANT IN THE MONTREAL COTTON COMPANY'S MILLS, VALLEYFIELD, QUE.**

BY F. C. ARMSTRONG.

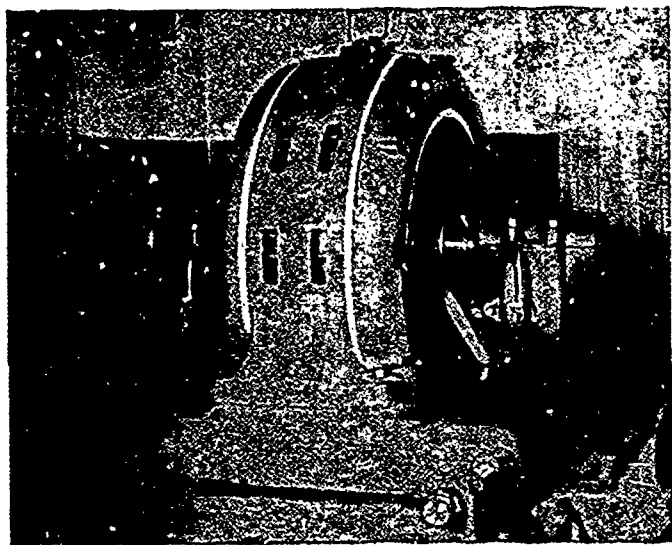
Amongst the most important of the great textile manufacturing establishments of the Dominion, both in respect to the amount of capital invested and the value of the annual output, are the mills of the Montreal Cotton Company, at Valleyfield, Que.

At this point, a dam erected by the Dominion Government to increase the depth of water in Lake St. Francis, connects Grand Isle de Beauharnois with the south shore of the St. Lawrence River, creating incidentally an excellent water power. Upon this island, 23 years ago, the first mill of the company was built, containing 600 looms, the necessary carding and spinning equipment, and a bleachery. About 16 years ago the mill was extended to contain 1,300 looms, and a dye-house and finishing department were added to the bleachery. Three years ago the bleachery and dye-house departments were re-arranged and greatly enlarged, and the mills have been enlarged each year since, until now they contain 80,000 spindles and 2,330 looms, and a bleachery and dye house large enough to handle 120 tons of cloth per week. The large increase in the size of the plant during the past three or four years, combined with the lowness of water in the St. Lawrence, has rendered necessary an increase in the power plant of the company. This up to last year consisted of seven 60 inch and four 54 inch Hercules turbines, and two 84-inch Risdon turbines.

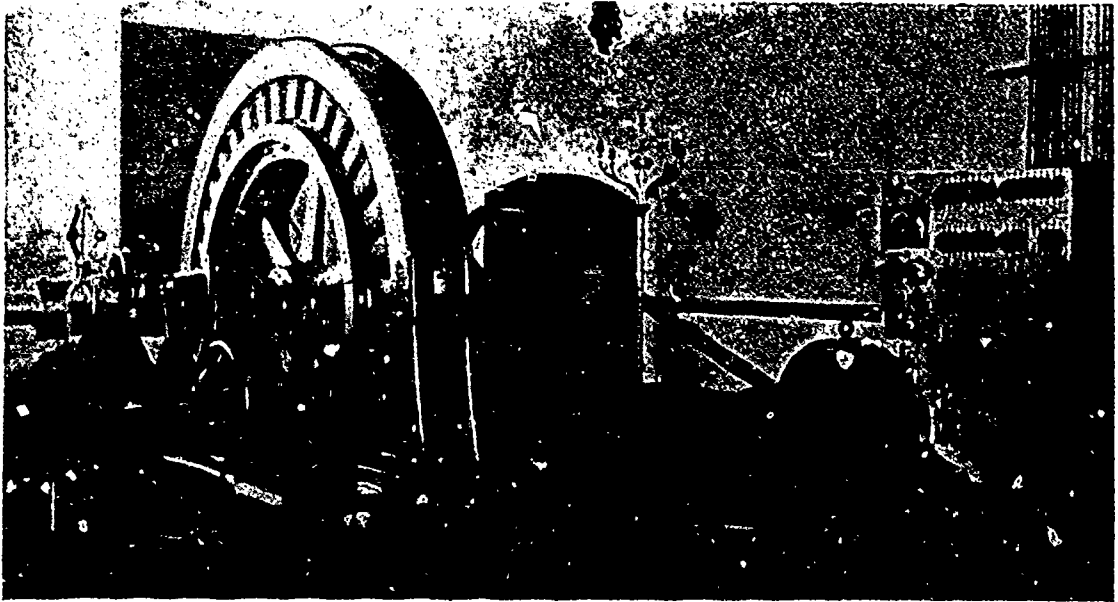
The selection of electricity as the transmitting and distributing medium for the additional power plant was arrived at after a careful consideration of the first cost, and losses involved in the various alternatives offered, of which the most feasible, considering the comparatively short distance to which the power had to be carried (to the farthest point not more than 1000 feet), was rope transmission. The choice of electricity and of the three-phase system with induction motors was made after an investigation by the general manager of the

company, Louis Simpson, of the principal plants operating under similar conditions in the United States, including the three-phase plants installed by the General Electric Company at the Pelzer and Columbia Mills.

For the hydraulic portion of the new plant a new flume was excavated, which was arranged to contain eight 60-inch McCormick turbines, each calculated to develop about 300 horse power, making a total of 2,400 horse power. The turbines are erected in pairs, each pair driving a 400-kilowatt generator. The lower part of the power house is all built in solid concrete, the power house proper, above water, being built of stone lined with terra cotta lumber. The roof is composed of 5 inch solid timber laid upon girders and covered with

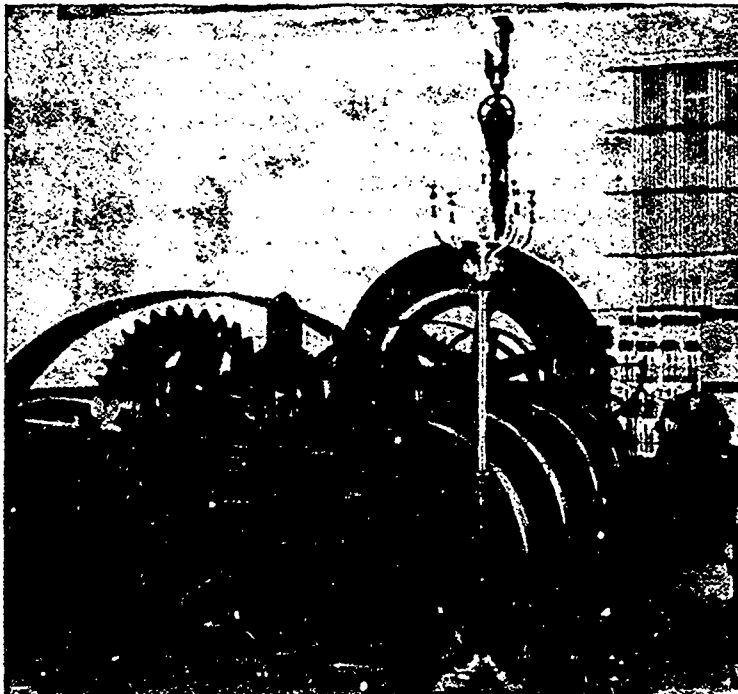


resin cement, and on the inside it is sheathed in steel, which is stamped out in panels and painted. Altogether the power house in solidity of construction and excellence of detail and finish is not excelled, if indeed it is equalled in America. The wheels are governed by Replogle's New Relay governors, the turbines being supplied by S. Morgan Smith, of York, Pa. The saddles and shafting were furnished by Wm. Kennedy & Sons, of Owen Sound, and by John McDougall,



of Montreal. The gearing wheels were supplied by S. Morgan Smith.

For the electrical plant, as has been stated, the three phase system of the Canadian General Electric Company was adopted, and a contract given to that company for two 400 kilowatt generators, the first of which has been installed and in satisfactory operation for about two months. The second machine will be in operation in the course of a few weeks. These genera-



tors, which are designated as A.P. 36-400-200, have 36 poles circumscribed within a steel yoke about the periphery of the revolving iron-clad armature, and represent the latest development in design and construction for machines of this type. A point to be noted is the very

slow armature speed, 200 revolutions per minute, which admits of direct coupling to the jack-shaft and of a consequent saving in power and floor space, and a generally increased simplicity in the entire installation. The armature, which is of what is known as the A. P. type, is of the multi-tooth style of construction, with distributed winding, and has in consequence a very low armature reaction, with a correspondingly close inherent regulation. The generator voltage, on account of the short distance over which the power is to be transmitted, has been fixed at 550 volts, thus admitting of the current's being used directly on the motors at that pressure without the use of step-down transformers. The motors are of the C. G. E. Co.'s standard induction type, varying in size from 50 to 100 h.p., and are, where a saving in floor space is desirable, of the inverted type, bolted to the ceiling. They are, of course, self-starting under full load, and as they are without collector rings or brushes, are especially suited for operation under the conditions favorable to combustion which exist in a cotton mill.

Altogether the plant is a model one, in every respect, and as the successful outcome of the first attempt on a large scale in Canada to secure increased economy by the use of electric power in the operation of a large industrial establishment, reflects the highest credit on Louis Simpson, the able and energetic general manager of the cotton company, and his foreman machinist-

Jas. Sparrow.

It might be added that the Montreal Cotton Company have now, as a result of the extension of their plant, a surplus of about 1,500 horse power, which they would be prepared to dispose of for manufacturing

purposes on a most liberal basis. The excellent situation and shipping facilities of Valleyfield should under these circumstances make it a particularly desirable manufacturing site.

For THE CANADIAN JOURNAL OF FABRICS.

### MACHINERY FOR BLEACHING. ETC.

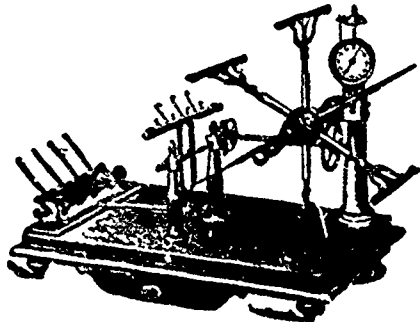
MADE BY W. H. HARRAP, BLACKFRIARS, SALFORD, MANCHESTER, ENG.

The almost infinite number of processes in the various branches of the textile industries have called into requisition a corresponding number of special machines to meet these requirements. The terminal processes of bleaching, dyeing, printing and finishing are specially distinguished in this respect, and have called forth a great amount of inventive talent and mechanical ingenuity. This is particularly the case in the minor machines, and in attachments to some of the larger ones employed in the principal processes. W. H. Harrap has numerous specialties of this kind. Among these may be mentioned particularly an improved



SEWING MACHINE

scutcher or wet cutting machine. This is constructed with an extra long bed, wide bearings, strong governor, strong scrolls with copper foundations and improved ends and centres, and many other improvements in details, which combine to make this a first-class working machine. Also he has specialties in angular opening rollers, and scroll openers, both described in last



WRAP REEL

number of THE CANADIAN JOURNAL OF FABRICS, improved damping machines, dye jigs, cloth winces, and calender bowls, in wood, metal or rubber.

One notable requirement of the bleaching and finishing trades is the great variety of sewing machines that are called for. This manufacturer has devoted great

attention to these, and has effected numerous improvements in details, which tend to make each and all more effective and durable than ever they were before. His piece-end sewing machine is a notable illustration of this, while his make of the Rayer and Lincoln type has been considerably simplified, now requiring no complicated and elaborate mechanism for taking out cloth. Thus it is claimed it is less liable to get out of order, and costs less in repairs. The several other types in use in these trades are also made by this firm, and all have been improved in important points of detail. Friction cones, clutches, and improved variable rope pulleys are comprised in his productions. So confident is he of the quality and superiority of his machines, that he announces his readiness to send most of them on approval to customers about whose credit and standing he is satisfied.

For THE CANADIAN JOURNAL OF FABRICS.

### CARD CLOTHING.

BY PRACTICE.

Too much attention cannot be given to the selection of card clothing, the structure of which requires not only a good foundation, but a good firm grade of wire, evenly tempered, and carefully ground. There is room yet for a great improvement as regards tempering. For instance, take a doffer that is nearly clothed and look at the colors of the wire between the splices of the leather, and you will notice them vary from a light steel to a dark blue, which will be found to be so many variations of different degrees of tempering. I find on finisher cards where we are using a single doffer and find the wire as above, that this is the cause of uneven work to a great extent, which it is mostly impossible to improve, as grinding with emery only seems to make it worse, as the softer wire will grind away the quickest, leaving the harder wire of greatest length, and consequently being nearer the cylinder, take a proportionately greater amount of stock from it.

Then, again, there is the question as to how the wire should be made, and the quality of the foundation in which it is inserted, of which there are a vast number of kinds, such as leather and India rubber in the various layers composed of either linen, cotton, or woolen fabrics, or unions composed of these various materials, together with cements of various kinds, which are supposed to make them adhesive; when all this is reckoned in with the improvements that are constantly going on, even with these improved fillet cloths and sheets of clothing, makes it a hard matter to determine which is best, or whether something still better cannot yet be produced. But for carding wool there is nothing yet invented that will excel a good even leather foundation which will hold the wire up to its proper position for good work, as I have found in my few years experience with them, that the fabrics mentioned above are greatly affected by the oils used in lubricating the wool and cause the rubber to dissolve, and after a few years it is mostly impossible to re-stretch them and get them on the cylinders in any kind of a presentable shape.

The wire, as noted above, should be evenly tempered and polished or burnished, so as to remove a scale which is often found adhering to the teeth of what otherwise seems to be a fair class of wire, and unless this is removed the fibre will never leave the tooth with that freedom which it should to make perfect carding. By all means buy your clothing ground, as this saves at least two or three days in clothing a sett of cards in useless grinding, which can be put to better account in the production of roving. When we consider that the re-clothing of the cards is one of the greatest expenses that a woolen manufacturer has to contend with in running a mill, it behooves him to make certain he is getting the very best in that line, and that the idea once advanced that one make of card clothing was as good as another has passed; and am I glad to know that our Canadian mills are demanding a first-class article, and those that were reluctant in the past to pay a few dollars extra per card for this purpose now see the necessity of using none but the very best.

#### MEANDERINGS IN MERRY ENGLAND.

(Correspondence of CANADIAN JOURNAL OF FABRICS.)  
No. 3

In the industrial history of Great Britain no department of trade has undergone greater vicissitudes than textile manufactures. The linen manufactures of England have dwindled until they are only a memory among the inhabitants of towns that formerly subsisted on them, while in Ireland, Belfast, the largest and wealthiest city in the island, may be said to have been created by the linen trade. The silk trade, the lace trade and the cotton trade have had equally remarkable ups and downs; while various branches of the woolen trade have shifted over the country like waves upon the tide of time. Our last letter dealt with Colchester, and this old town, that has now no connections whatever with the textile trades—save the drapery shops, without which no British hamlet would be complete—was once a centre of important branches of cloth making. Kersey cloth took its name from the village of Kersey, not far from here. The kerseys of Suffolk and Essex were referred to in an Act passed in the reign of Edward III., and there is evidence that they were not always the coarse and common cloths we associate with the name. Planché says, "there were various kinds of kerseys—ordinary kerseys, sorting kerseys, Devonshire kerseys (called washers), check kerseys, 'dozens,' and kerseys called 'straights,' varying according to texture, length, breadth and weight of the piece, which was strictly regulated by statute." Stafford, complaining in 1581 of the growing luxury of men, wrote: "Now will he look to have, at the least, for summer, a coat of the finest cloth that may be gotten for money, and his hosen of the finest kersey, and that of some strange dye, as Flanders' dye or French puce, that a prince or great lord can wear no finer if he wears cloth." In a list of goods that were allowed to be exported free of duty for the use of the King of Portugal and Countess of Holland

in 1428, two pieces of white kersey are included. In an inventory of the stock of Richard Gurnell, a clothier of Kendal, in the year 1555, an idea of the value of kerseys in those times may be obtained. Among the items are: "ij yards of carsay, 2s. 8d; x yards of carsay, 10s.; xxij yards of carsay, 16s. 4d. Of white carsay, undight, 23s." This stuff, says S. William Beck, editor of the *Drafter's Dictionary*, was commonly used for making stockings before the introduction of knitting. In a manuscript work prepared for King James on his accession, it was estimated that about 150,000 kerseys and bayes were sent abroad then, the exports being largely to Holland and France. It should be noted that the word cassimere is derived from kerseymere, a finer kind of kersey, first made at a factory built on a brook near Kersey. Again the now decayed village of Linsey—also in Suffolk and not far from Colchester—gave the name to the well known fabric, linsey-wolsey—so-called from its mixture of linen and wool. Certain Dutch settlers who came over to Stamford in 1567, and were granted the privilege of dwelling there, gave the following as a declaration of their business: "These are the arts we think most fit to go together, and we will promise to our best to dwell there; Lynsey weavers, Tike weavers, Silk weavers, Lynsey-wolsey weavers, Flanders cloth-wollen, Fresado (a kind of woolen) sackcloth, tapestry and arrass and other like, which your honor shall think most meet to dwell there." This stuff came to be exported; but every vestige of all these classes of manufacture has disappeared and an occasional relic of a handloom, shown as a curiosity, in the cottages about the sleepy villages of Linsey and Kersey, is all that is left of these ancient industries. Daniel Defoe, in his "Tour through the Eastern Counties," made in 1722, tells us that Eastern Norfolk and Suffolk were "rendered exceeding full of inhabitants" by the weaving trade, and "an eminent weaver of Norwich" calculated that "120,000 people were employed in the woolen, and silk and wool manufactures of that city only." He goes on to say that the trade "felt a very sensible decay, and the cries of the poor began to be very loud when the wearing of painted calicoes was grown to such an height in England as was seen two or three years ago; but an Act of Parliament having been obtained (though not without a great struggle) in the years 1720 and 1721 for prohibiting the wearing of calicoes, the stuff trade revived incredibly." We are informed that clothiers came here from "Halifax, Leeds, Wakefield and Huddersfield in Yorkshire, and from Rochdale, Bury, etc., in Lancashire, with vast quantities of Yorkshire cloths, kerseys, pennistons, cottons, etc., with all sorts of Manchester ware, fustians, and things made of cotton wool." Norwich alone of all these old textile centres retains a weaving trade, but its proportions are reduced and its character altered, and this change is going on still.

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## ECONOMY IN DYEHOUSES V. WASTE.\*

*(Concluded from last issue.)*

If we want to be economical dyers, we must never try to dye skein yarn in a warp frame, nor warps in a skein kettle. We can dye cotton piece goods successfully in a jigger, but not worsted piece goods; neither can we dye cotton piece goods in an open piece kettle, but we can dye worsted piece goods in an open kettle successfully. We must stand up for our rights. We shall gain more respect from our masters. A properly equipped, economical dyehouse will have the best kettles in the market for its particular work, in order to excel in its work. An economical foreman dyer will remove all old kettles; they are only drones—steam and water, time and labor wasters. If you wish to succeed, if you wish to be considered an economical master of your particular branch of work, you have no time or use for anything but the best.

Next comes the water, which has its share in the ranks of economy, and I venture to state that there is no other commodity that is subject to as much waste. No other article in the dyehouse requires so much attention. If you draw your water direct from the main to your kettles, you can see some part of your men waiting while the other part are being served. The supply is too small in more than half the dyehouses in this city to day. If you ask your master to put up a large tank, he will say it is too expensive, or that there is not force enough during the day to fill it up—a mere excuse. He pays for several tanks in a year in wages, but he doesn't see it. Where ignorance is bliss, 'tis folly to be wise. He will walk through the dye-house in his usual routes through the mill, see two or three men standing, ask you if you have nothing to do for So-and-so, and you dare not say that they are standing there through his own personal bad management. You have to prevaricate, and answer him, as usual, that they are waiting for water. And still the scales remain over his eyes; he is blind. If he would only listen to the water when all the valves are shut off, in nine cases out of ten he would hear it hissing all through the dyehouse—I mean in bad joints and worn-out valves. The men can wait; the dyer must be blamed if his production is short or his expenses too high. A well-regulated dyehouse will have a tank large enough to reserve as much water as will fill every kettle in the dyehouse at least once, with pipes sufficiently large to fill the kettle without so much unnecessary waiting.

Next comes steam. Too often we have occasion to find fault with steam, and very often the fault is waste. You want to boil your kettle, but cannot get steam; you see the engineer; answer, "plenty of steam blowing-off." Yes, through the safety valve; wasting what ought to be boiling your kettles. Your pipes are too small to convey enough steam to boil more than two or three kettles at a time, although you have nearly twenty kettles in the dyehouse; a 2-inch main pipe to

supply twenty kettles with inch pipes, drive two hydro-extractors and one drying machine, besides heating three or four rooms of the mill. Maybe the main pipe is uncovered, runs from the boilerhouse, probably one or two hundred yards away from the dyehouse. You will also find in many cases that one-half the valves need new seats, also several leaking joints where the coal is escaping in the air at the rate of several tons per annum.

I went into a dyehouse in this city not very long ago, and the master said to me: "Our greatest difficulty is being short of steam." And so they ought to be; they had twenty-two kettles, all told, in the place, four in actual work, sixteen boiling, and two more partially boiling. I said: "You should shut your dyehouse down a few hours and get a plumber to either repair or replace your steam valves." He had never noticed it himself. Result: instead of being short of steam or boilers to make it, he could actually afford to stop one boiler. I say an engineer that will deliberately throw coal away, like this man had done, is too fond of hard work for my mind. I like to see an engineer that has some thought for himself. You will find such a man with a wrench as often as with a coal shovel, and that's the kind of man you want. I would not forget that the dyer can do wonders in the shape of economy with steam. The dyer ought to save all he possibly can in this respect. Boil a kettle when he has to get his batch out; when it is finished, follow on another batch where it is possible to do so, which he can do to advantage in acid colors, and get his work out quicker and better. The main pipe should be large enough to supply steam to an average number of kettles, so that a kettle may be boiled up quick. The pipe should come as direct as possible from the boiler, avoiding bends wherever possible, to save friction. The main pipe should be covered with proper covering to prevent condensation, in order to keep the steam as live as possible. Jennings' valves should be used, all leaky seats removed at once, all joints kept properly packed, to ensure economy.

Now that we have our dyehouse kettles, water and steam, we are ready for the drug room—a very important room; in it you keep your drugs, in it you make your formulæ, weigh, study and match. How many masters study your comfort when selecting the drug room? Not an average of one in a hundred. They attach no importance to it, but simply put you anywhere, where it is most convenient for themselves; your inconveniences never enter their minds; you are only a paid servant. They know that you are an essential part in their mill—a piece of machinery—and as such you can make up your mind to be treated. You will find drug rooms mere shanties in the yard, too small to hold half your stuff, consequently you are covered with dyestuff every time you go in to weigh.

When you want a package of dyestuff that you have no use for every day, you must lift three or four packages from the shelf first. You will find some drug rooms in another part of the building altogether. When they built the dyehouse they had no idea that they

\*Read before the Dyers' Mutual Improvement Association by Jos. Schofield.

would need a drug room. I know one dyer who has to walk sixty yards for every batch he weighs, sixty yards for his sample, and sixty yards with additions, etc., to tell his men to take the batch out. If he dyes sixty batches per day he must walk about four miles more than he ought to, or, in other words, his master pays him one-quarter of his wages for nothing but to wear his shoe leather. Most drug rooms in this country—and I have seen many—are miserable, dirty, small, uncomfortable shanties, and you would wonder sometimes, when you look upon some of the work of our craft, if it is really possible to bring such beauty from such filth. A proper drug room should be either in the centre or at one end of the dyehouse, large enough to have a place for all your drugs, so that all of them can be put in their places. It should be airy, lofty, and well lighted; everything about it should wear a cheerful aspect, so that every time you have occasion to enter it, no matter what annoyance you may have met with in the mill or dyehouse, you will feel as if you were at home again, your ruffled temper put straight. In such a place you can scarcely fail to work economically, therefore your master will be repaid for providing for your comfort.

Next come your drugs; and I venture to say that in the selection of drugs the idea of economy is very often never thought of. We often use drugs because we have used them before, and feel sure that they will produce the shade we desire; we use them because we know of no better method; we have been too lazy to look for anything better and cheaper. We get to be very much like a locomotive; we cannot run unless we are on the track we have been in the habit of running on. The moment we get off the track we are stuck; we lack education; we have never read the literature published at great expense for our benefit; we are too wise in our own secret ways, invented by our fathers, or possibly our grandfathers; we neither want to learn other people's ways nor teach them ours; we have too much of the life of a flower about us—appear beautiful for a short time during our natural lives, and then die and wither away, to be forgotten that we ever had any existence.

The Foremen Dyers' Mutual Improvement Association has no use for such a man; the world has no use for such. We are here for the purpose of benefiting our fellow-men, and at the same time improving ourselves. If we wish to excel we shall have to excel in the selection of the drugs we use. What is there more humiliating to a foreman dyer than to be told that his colors are not up to the standard; that So-and-so's goods look better than his, although made from the same stock? What is more humiliating to a foreman dyer than to hear the salesman say on his return home after months of hard work trying to sell his goods, "it's no use to offer ours alongside other people's; we are not in it; our colors are dead—no life in them. I could have sold lots if the colors had been bright. The goods were all right, but the colors bum; consequently I have done nothing." Result, change of dyer.

Don't buy drugs because they are cheap in price; they may be dear in practical use. There is nothing saved in paying one dollar a pound for Glauber's salt; you can buy it at fifty-five cents per hundred pounds. Sugar is best used with your tea and coffee at home; you have no use for it in your drugs. You need not buy water by the barrel; you can have it through the water-main. Dyestuffs that contain the least percentage of the above will be found to be the best. Don't buy one hundred pounds of an article that fifty pounds of it will spoil before you can use it, simply because you can buy one hundred pounds two cents per pound cheaper than what you can buy ten pounds for. Don't buy drugs because the drugman says your neighbor is using them, but find out by test and trials if you can improve on what you are using. Wherever you may be, keep your eyes open; if, perchance, you see a color better than what you are producing, find out if you have the necessary drugs for producing it; if not, never rest until you know what will, and what will do it cheapest, if more than one way. You will find the names of drugs vary, although in many respects the products are the same; each house gives a special name to their own. Of that we will say little. Learn to make your own combinations, keeping in mind red, blue and yellow; the combinations that can be obtained with these three are inexhaustible.

Next comes your help. How many masters to-day are ready to hire the man who is willing to work for the least wages, regardless of the man's abilities! I would, if I had my own way, employ the best men in the city and pay the best wages, and I should have the best results from their work.

#### TEXTILE CENTRES OF GERMANY AND AUSTRIA.\*

After a preternaturally long infancy and a short but healthy youth, the textile industry of the Empire of Germany is now entering upon a vigorous maturity. Whether its further development will be that of a giant can only be surmised; but if the surmise be based upon the marvellous growth of its youth, a giant stature is clearly indicated. Such startling industrial growth as Germany's during the past 17 years has only been equalled once in history; that was in the United States from the close of the war to the early nineties.

While the Teutonic race has been famous for its textile fabrics since history runneth not to the contrary, it is only during the last two decades that it has assumed proportions which bring its development within the industrial marvels of the 19th century. What were textile centres there in mediæval times are textile centres to-day; but in the earlier days those centres were only a minority of the German, as they are now. The modern development began some years after the King of Prussia became the Emperor of united Germany. Indeed, it would not have been possible under former conditions any more than the erstwhile prosperity of

\* From the *Dry Goods Economist* (New York.)

American industries would have been possible without the fateful events of the early sixties.

When the German textile industry shall have reached its highest point and its history is written, its development will be dated from the year 1879, not from six or seven centuries back, when there were primitive textile centres supplying many other peoples with the cloth with which they covered their backs.

In the year 1879 industrial Germany may be said to have emerged from infancy into youth. From that year on factory chimneys began to jostle and crowd mediæval castle towers. The brick walls of modern factories began to shut from view venerable piles of masonry whose ages were reckoned by centuries. From that year fair Saxony, on the east, began to throw off her humdrum quiet and assume a textile leadership, while on the west the beauties of the Rhine were gradually clouded by the smoke from factory chimneys. Then, too, began the transition of agricultural into urban populations. Quiet, lethargic market places, whose peace and repose had long been a proud heritage, began to resound with the clatter and tread of hurrying throngs, the hum of machinery began to be heard where before no sounds had greeted the ear, but those which accompany the easy movements of a contented rural people. Textile industries had been going on there for centuries, but they were not the industries of to-day. They were industries which did not call for the aggregation of humanity at any one spot, because they depended on individual rather than mechanical effort.

During several decades preceding 1879 Germany's textile industries had scarcely progressed. They had been locally important, but stationary. She did not even supply the demand of her own markets. While the English free traders were, perhaps not quite unselfishly, preaching their theories, England was marching forward rapidly, because she had extensive foreign markets scarcely open to any other country. Germany was eager to emulate success and was easily infected. She tried free trade for eight or nine years, only to find herself more dependent on England than ever. During that period it was common to read signs in the store windows of German cities bearing the legend, "English goods sold here," though perhaps not so common as it is to-day in England to meet the phrase, "Made in Germany." It seems almost incredible that a little over twenty-five years ago the production of cotton fabrics in France exceeded that of Germany, and that only by the acquisition of Alsace and her 2,000,000 spindles was Germany able to take precedence of France in the tabulated statistics of the manufacture of textiles.

Before Germany had thoroughly experimented with free trade, the United States, under protection, had performed marvels in debt paying and had practically accomplished material prosperity. This was an example for the world to copy. In 1879 the Germans determined to cast aside the free-trade theories and try protection, and from that year Germany has been an industrial factor to be reckoned with. From a weak and

insignificant square on the industrial chessboard of the world, she has moved to an absolutely commanding position.

But while without a doubt protection was the moving cause of this industrial revolution, it was not the only cause. Protection to her industries would, alone, have accomplished little of what has been done in Germany since 1879. To the thoroughness of her methods quite as much as to protection must the change be attributed. German methods were as thorough between 1870 and 1879 as they were immediately after, yet she did not advance industrially in that time. She did not lose, except in competition with England, but she did not advance in comparison with other countries. From the moment her industries were protected Germany's industrial future was assured. She leaped and bounded forward with giant strides, which at first made men wonder and now make nations marvel and admire.

Having so well prospered under protection, Germany turned her attention to extending her markets, since she was able to hold her own at home. She profited by the lesson taught by the United States—that of reciprocity with other nations whose commodities she could take without injuring her own industries. Local sacrifices, of course, were inevitable, but they were as nothing balanced against the gains to the country's trade as a whole. During the two years or so since the conclusion of her treaty of reciprocity with Russia, Germany's textile industries have increased phenomenally. The trade of Saxony, of Crefeld and Elberfeld, and of Eastern Prussia, are notable examples. The textiles from these localities now find their way all over the land of the Czar, where before they were practically unknown.

Of Germany's commercial and industrial methods too much cannot be said in commendation. They are typical of the German character—thorough, enlightened, and the result of close observation and application. There may be some ports her textiles do not reach, but they do not compare in number with the ports where her manufactures have superseded those of other countries. In every country where German textiles are sold they will be found to be as closely adapted to local requirements as is possible, and to be marketed according to local requirements.

Since 1879—as hundreds of our own, as well as English, consular reports are constantly stating—German merchants have thoroughly familiarized themselves with the needs of all the peoples of the world who were willing to purchase German merchandise. They have not accomplished this by sitting in their mills or offices and studying consular reports.

It is considered an essential part of a German manufacturer's commercial education that he speak several languages, and that he shall have spent some considerable time in travel or residence abroad, where business is being done or may be done.

German manufacturers establish wholesale dry goods houses in all important foreign markets, and are

represented therein by agents who speak the language and are familiar with local methods and requirements. In fact, from the moment a German manufacturer of textiles determines to push his products in any particular foreign market, he does it very much as though the goods were made there and everything connected with the business was domestic instead of imported. This, combined with a rigid honesty, true representations, and the expectation of only a reasonable profit, has been the method under which German textiles have gained a strong hold all over the world where two decades ago they were, if not unheard of, at least unknown.

In the textile centres of Germany the methods of production are conservative where in some other countries they are speculative; they are advanced and progressive where in many countries they are slow and unprogressive. Germany began where other countries were about stopping; there is little fear that she will end where other countries began.

In the success of German textiles—and that success cannot be questioned in face of the fact that she bombards England, the great textile centre, with them—is demonstrated her thoroughness of method from beginning to end. The German manufacturer's first object is to rival, then excel, the productions of other countries. Having done this, he undersells them, where protection does not make that impossible. And even in countries which have high tariffs the German textiles will be found competing in the market with the domestic fabrics.

In the past 12 or 13 years Germany's trade with some foreign countries has increased tenfold; with most it has more than doubled. And this despite the fact that throughout the textile industry wages have been steadily increasing. Skilled labor in Germany often commands a higher wage than in England, while the labor as a whole is nearly as well paid as in England, and certainly much better paid than it was under free trade in Germany, when the industry was not even supplying the home market. Wages have increased, and hours of labor have decreased.

The thoroughness of the German method begins at the beginning—with the mechanic and the laborer. Without efficient labor to carry out the designs of those who plan, enterprise would exert itself in vain. In the German textile industries the most skilled labor is in most constant demand.

It has been pointed out by Lord Rosebery to Englishmen, and by several advanced thinkers in the United States to Americans, that one of the causes of Germany's success in industrial warfare is the superiority of her system of technical education. Her technical schools will be found in and about every industrial centre, and wherever they are found it will be admitted that they have so largely increased the efficiency of the workpeople that equal results could not have been obtained without them.

The technical schools are liberally supported by the State, and they provide the means for all who wish

to become expert workmen, instruction being given by day and by night. In many places—such as Chemnitz, for example—the chief building of the town is the technical school. In Chemnitz the higher-grade school educates some 800 or 900 pupils every year for commerce or factory work. There are also weaving schools, where the local occupations are scientifically taught, and where the workers become expert and ambitious instead of indifferent. The course is generally one year.

The beneficial effect of this technical education on the textile industry of Germany is immeasurable. Every skilled operative has within his reach a theoretical knowledge of all the intricacies of the machinery used in his trade, of all the methods of manufacture—in fact of every theoretical and higher detail with which the average operative in other countries does not concern himself. The result is a higher class of labor, which works with more profit to all concerned, is always ambitious to rise, and in the attempt produces such highly finished textile goods as now bear the German brand in all the marts of the world in successful competition even with England, France and America. It is a fact worthy of mention that since the German patent laws went into operation—now 19 years—just one-half of the 500 or so patents applying to the manufacture of knitted fabrics have been taken out in Saxony, where technical education invariably rounds out general education.

But the value of the German method lies as much in her commercial as in her industrial thoroughness. The business is an inheritance from father to son, each in turn endeavoring first to maintain and then to improve the legacy. Johann Esche introduced hosiery knitting into Saxony some two hundred years ago, and that business has descended from father to son to the present day without a break. In another instance there have been only four changes in the personnel of a firm in just 100 years. The sons of manufacturers are thoroughly trained for their future calling before taking any active part in business. In Saxony, to mention only one centre, there are over forty commercial schools where the future merchants are prepared for their successful careers at home and abroad. In these commercial academies the instruction is practical and thorough.

Stock companies are comparatively few. The payment of interest on watered stock and inflated capital is an unknown evil in the German textile industries. Most of the factories are owned by families or small corporations. Enormous profits are not expected, management is frugal, and there is less ostentatious display of wealth, and therefore little greed for the means of making it.

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ISAACSTEIN.—"Mein Gott, dey put mine failure in de bapers! Now cletyopoddy vill know it!" BAXTER.—"That's where you should have advertised your business and everybody would have known it, too. Then you wouldn't fail."

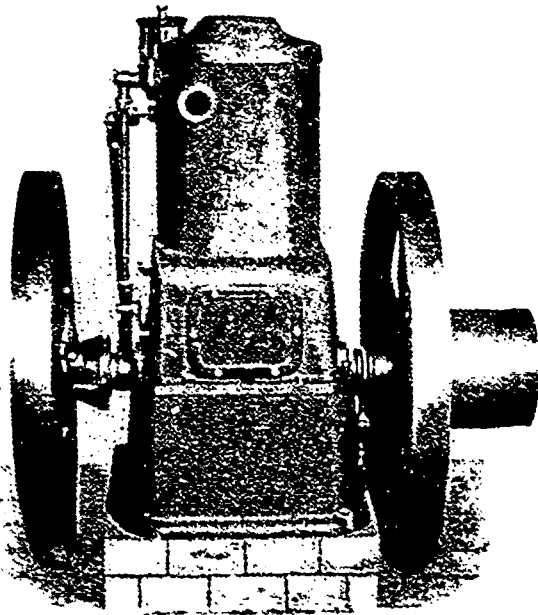
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### IMPERIAL GAS AND GASOLINE ENGINES.

The Imperial gas and gasoline engine, while containing nothing that may be termed radical in good gas engine practice, embodies several improvements in details and design that will prove interesting to our readers. The vertical design has been adopted as being more compact and pleasing in appearance than the usual horizontal type. Fig. 1 shows the general appearance of the engine in all sizes. The pump used to supply the gasoline to the sight feed cup is shown in its position, bolted to the side of the engine frame, and also the shaft governor, which is simple in design, and acts positively on the governor valve. The governor embodies some new features from the fact that it does away entirely with the "hit and miss" plan on which many gas engine governors work. The "Imperial" works on the "Otto" cycle, and the governor supplies the cylinder with a charge every other stroke, which is graduated to the work being done, and the piston receives an impulse of greater or less effect accordingly. This feature makes it especially adapted for electric lighting purposes.

The gasoline pump and the governor are the only parts working outside the engine frame. By referring to Fig. 2 it will be seen that the gearing, valve cams, and shaft for imparting motion to the igniter are all enclosed and dust proof, though readily got at by removing the side plates on the frame. The crank dips into an oil chamber at each stroke and throws the oil in a fine spray into the cylinder and over all the working parts, from which it drips back into the chamber to be used again. After four months' usage an engine was taken apart for examination, which showed that every part had been well lubricated. The engine is built with either the tube or electric igniter, but the electric igniter is preferred. Motion is received from a shaft connected to the gearing and imparted to the electrode of the igniter by a crank and arm motion which gives a wiping spark above and below a small wire electrode, which has a long life and can be readily renewed. The vaporizer for the gasoline is situated inside the frame, and does away altogether with the use of a carburetter. No explosive mixture is made until the downward motion of the piston draws a supply of air through the inlet valve, and as the air must pass through the vaporizer to enter the valve, it converts the gasoline on its way, and leaves no mixture



IMPERIAL GAS ENGINE FIG. 1

within the engine frame. This system does away altogether with any semblance of danger in the use of gasoline, and is a great improvement in that respect. With the use of the electric igniter there is no delay in the starting of the engine, and in regular practice the time needed is less than one minute. A novice can start

them quite easily, and the simplicity of the entire outfit makes it a desirable outfit for any purpose where power is required. Villages and towns, summer resorts and large factories, public buildings etc. find it an efficient means of producing power for a combined electric lighting and pumping plant. For a pumping plant, a plant

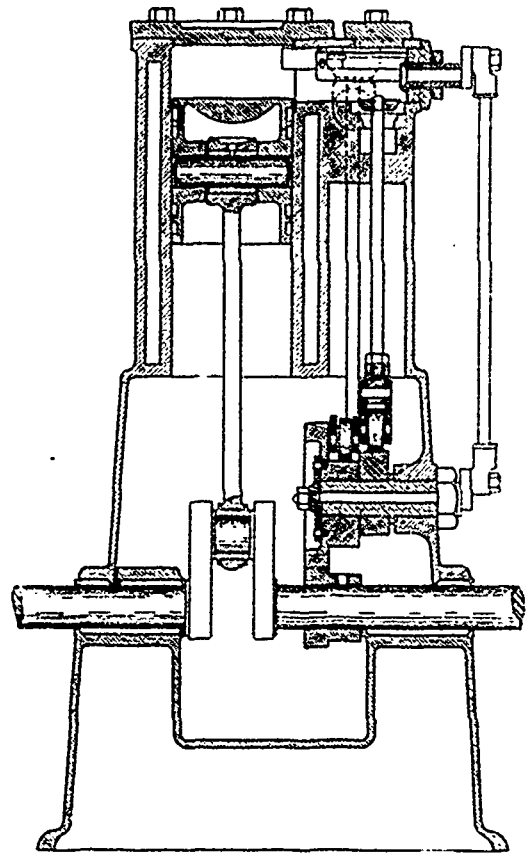


FIG. 2.

of this kind can be used during the day for supplying water for domestic purposes, and at night can be started full power at a minute's notice for fire protection. Where city gas, natural gas, or producer gas of any kind can be had, the engine can as readily be operated as with the gasoline.

The Cooper Machine Works, 128 Adelaide Street East, Toronto, are the builders of the "Imperial" engine, and will build it in all sizes, and intend devoting their entire time to the manufacture of gas, gasoline and oil engines for all purposes, stationary, marine and portable. They will also build suitable motors for horseless vehicles.

CAPTAIN ALFRED T. MAHAN writes a fourth and final article on Nelson's engagements for the *Century*, "Nelson at Trafalgar" appearing in the March number. Captain Mahan relates the following anecdote of the great admiral: The admiral in person, accompanied by the train of frigate captains, inspected the "Victory" and her preparations throughout all decks, ample time for the tour being permitted by the slowness of the advance. At 11 a.m. he was in his cabin, where the signal-lieutenant, entering to prefer a request of a personal nature, found him upon his knees writing, and it is believed that the following words with which his private diary closes, were then penned: "May the great God whom I worship grant to my country, and for the benefit of Europe in general, a great and glorious victory; and may no misconduct in any one tarnish it, and may humanity after victory be the predominant feature in the British fleet. For myself individually, I commit my life to Him who made me; and may His blessing light upon my endeavors for serving my country faithfully. To Him I resign myself and the just cause which is entrusted to me to defend. Amen, amen, amen."

## GERMAN ENTERPRISE.

It has long been suspected that certain German manufacturers work upon a deliberate system of copying the style and appearance of English made goods; and the suspicion has just been turned into certainty under very sad and remarkable circumstances by the suicide of a young German named Hermann Haas, because he was unsuccessful in obtaining certain patterns of straw hats to transmit for imitation to Germany. In a letter to his parents, which he left behind him, there occurs the following passage —

"I have been trying very hard to find out something suitable for our purposes, but in spite of all my endeavors remain fruitless. I have been struggling through various warehouses, and sometimes success seemed certain, but at the last moment, when I got to the counting-house to pay for the hats I had chosen, they wanted me to testify that I was the owner of a milliner's shop, which was, of course, impossible, so I had to say good-bye to my hats. I have seen some very nice shapes, and I am trying to get them from milliners' shops. Amongst other various features, I have noticed a new way to utilize straw plaits for making up hats."

While we deplore the fact that this unfortunate youth, who was only nineteen years old, should have been driven by his ill-success to take his own life, we cannot but feel some satisfaction in knowing that representatives of German houses do not find it easy to obtain in the wholesale trade the samples they want for purposes of imitation. No doubt it is quite possible for persons in the position of the unfortunate young suicide to obtain a good deal of what they require from milliners' shops; but in such case they cannot have so vast a variety to choose from as is to be found in the wholesale trade, and, moreover, the imitations are bound to be late in the market. — *Drafer's Record, London.*

## AN OPEN LETTER ON THE TARIFF.

DETROIT, Michigan, U S A, January, 1897

WILFRID LAURIER, Premier of Canada :

Will you permit a suggestion which may aid you in reaching a wise solution of the tariff question. I speak as one who is deeply interested in Canada, who believes that the commercial prosperity of the United States may, in time, be paralleled within Canadian borders, and who rejoices in the good fortune which has at last brought together, at this crisis, the evident opportunity and the man to take a right advantage of it.

My suggestion, briefly, is this — Will you not be much more likely to arrive at the best conclusion, if for a moment you lose sight of all minor details, and the many class interests which are selfishly forced upon you, and focus your attention on one salient, essential feature of the whole question, and that is the fact that you are legislating for only 5,000,000 people, and that the Canadian market is so limited and restricted that it is not practicable to so specialize as to produce to the best advantage.

It is recognized on all sides to-day that a large part of the advance made by modern industry has come through specialization—the division of an industry into its separate parts, each worked by a specialist. The history of man's industrial growth is a perfect illustration of this. The first settler grew the wool, sheared it, carded it, spun it, wove his own cloth, and wore his homespun, home made suit. By and-by, with the increase of population came, naturally, a sub-division of labor, and with a still greater increase came competition and the natural solution of competition — economic production through specializing. There are factories in the United States where, fifty years ago, one workman made an entire machine, where, to-day, the same workman does nothing but cut a small thread on the steel bolts of the machine. This is specialization, and it is the key to the industrial growth of Canada to-day, if she can secure the large market needed to make specialization possible to her.

Specialized industries are inevitably foremost in their line of product. As this question has a most important bearing upon the present Canadian situation, I shall ask you to let me cite briefly one or two instances of specialization. Compare the shoe trade of Canada and of the United States. Many of the Canadian shoe

manufacturers (though not all) say that Canada being the cheapest labor market on this entire continent, they would be quite willing to endorse the freest reciprocity between Canada and the United States, and that, the conditions being equal, they would be quite prepared and willing to compete, feeling perfectly confident of their ability to get an ample amount of profitable employment out of a market of 75,000,000 people. Those manufacturers who feel that they would not be able to compete with the United States are the men who are not specializing. They are engaged in manufacturing every variety of footwear worn by humanity, and this has been repeatedly shown to be uneconomical and wasteful. I have heard it estimated by competent authorities that their method of shoe production was equivalent to a waste of fully 20 per cent. How large a figure this waste amounts to may be better understood by reference to an item in the *Shoe Trade Journal*, of Chicago, the issue of December 26th, 1896, page 19. It is there stated that the total product of boots and shoes in Canada is about \$30,000,000. On these figures, which are, no doubt, reliable, the Canadian waste, through lack of specialization, reaches the enormous total of \$6,000,000. Now these manufacturers, burdened by the wasteful methods naturally associated with a small and restricted market for their labor, assume that the same conditions would prevail for them if there was commercial reciprocity between the two countries. They overlook entirely the fact that they would then be making shoes for 75,000,000 people instead of 5,000,000. They do not stop to consider that with such a market open to them they would immediately stand on an entirely different footing from their present position. They would specialize. In the place of their wasteful system of producing in one factory everything in footwear that is worn by humanity, they would naturally adopt the economical plan that is practised by the shoe manufacturers of the United States, and concentrate their attention upon special lines.

It may be interesting here to note the way in which the shoe business in the United States is focussed and centred. Brockton and its adjacent district make nothing but men's fashionable shoes. Natick, Spencer, the Brookfields and their district, make nothing but coarse kip, grain, such shoes as are worn by agriculturalists, navvies, miners, iron workers, etc. They specialize on these. Rochester, N.Y., specializes on women's and misses' fashionable high grade shoes. Some factories here specialize on children's. Cincinnati, O., makes only women's high grade. Philadelphia, Pa., specializes on children's and misses' (with some women's) of fashionable quality. Stoneham, Mass., on milkmaids, farmers', and working women's durable shoes. Beverly and Salem, Mass., on old women's comfortable shoes. Lynn, Mass., focusses on women's shoes of the cheapest fashionable kind. Haverhill, Mass., on women's slippers and low shoes, also men's dancing shoes. One or two factories here specialize on men's cheap light shoes for southern trade, Auburn, Lewiston and Bangor, Me., on men's fashionable shoes. St. Croix, Me. (actually on the Canadian border line) focusses its enormous production entirely on men's cheapest stylish shoes. New York city, on the finest grades of women's shoes, and a few factories on the finest grades of men's shoes. Newark, N.J., the very finest grades of men's fashionable shoes. Scattered towns through New Jersey group with Philadelphia and make children's and misses' shoes.

Everywhere we find the United States manufacturers specializing, and nowhere do you find a shoe manufacturer attempting to make all kinds. I remember remarking upon this to a Canadian shoe manufacturer, who showed me the enormous variety of footwear he was obliged to make, to get enough work to run his plant. I told him that "there were large factories in the United States who made nothing but men's fashionable shoes for \$1.60, and others who made nothing but men's fashionable shoes for \$2.25, and others who made nothing but plough shoes, brogans and creoles for \$1, and that they never thought of trying to make all kinds." His reply was that if a Canadian manufacturer should try to do this for a constituency of 5,000,000 people, he would have to close his factory before the end of the year.

Canadian manufacturers of all kinds meet this same difficulty when they buy their materials. They find that the producers of their

materials cannot afford to specialize, because their market is so restricted and limited. Thus, to one disadvantage there is added another and another, and so *ad infinitum*. Take, for instance, the manufacture of elastic fabrics in Canada. There have been half-a-dozen attempts made to manufacture elastic for shoes, suspenders, garters, etc. The very first factory to make this class of work on the North American continent was established in Canada at Coaticook. After a life and death struggle the concern failed, but the machinery and the embarrassed manufacturers went over to the United States. All of the machinery was eventually set to work, and some of the men have by years of labor acquired a comfortable competency, which, of course, was impossible to them in Canada, simply because the market was so restricted that to specialize, as they were doing, was impossible.

This industry has been tried in Canada again and again, and you will find that the last factory attempting to make elastic fabrics in Canada, which was located at Niagara Falls, has lately moved to the United States. They were compelled to abandon the attempt to make elastic fabrics, although elastic is used in Canada to a considerable extent, but not to the point of supporting a factory for it. So limited a quantity of an infinite variety could not be economically produced. This concern was one of ample capital and equipment, and would gladly have remained in Canada if the market had not been so restricted and limited. The same attempt has been made before by several others, but it has in all cases been abandoned. If a reciprocity treaty is made with the United States, the article of elastic fabrics should surely be put on the free reciprocity list, as there is none of it manufactured in Canada.

And surely the British in Canada, who have tried, or are now trying, to build up Canada, are entitled to your consideration above and before those who have stayed at home and know little by experience of the needs and conditions of the country. The loyal love of those men who have spent hundreds of thousands of their hard-earned dollars in trying to establish their industry in Canada, surely deserves to be recognized. I have talked with hundreds of British-born people in the United States, between Maine and Oregon, just south of the border line, and their experience in Canada has led them to the same inferences which I have here drawn. It has been in their case invariably the impossibility of economical specializing in the so restricted and small market of Canada, which has been, directly or indirectly, responsible for their failure. Remember that these men were, many of them, first induced to come to Canada from their British homes by the glowing accounts and printed prospectuses so vigorously circulated in England, claiming that Englishmen with money should try Canada. As well bring water from England and try with it to fill a Canadian sieve, or keep Canadian flies from United States molasses by drawing a line or building a wall. They have tried her, and lost their time and money both, and many of them are beginning again much lower down the ladder than they started. Surely these people, with practical experience of the needs of the situation, deserve to be heard and considered, reciprocally, more than those brother Britishers who stayed at home, and have not, so far, been willing to lend any effort to build up Canadian industry. These are specimens; there are hundreds of others.

What is true of these two manufacturing industries is known to be true of the raw materials they consume. With the low prices for which their materials of equal quality are obtainable in the United States, their machinery and most of their materials have to be got from across the border. There is no doubt whatever that the reason for the difference in cost is the fact that in the United States concentrated specialization has effected important economies which are impossible in a country drawing its life from only 5,000,000 people. The manufacturer in Canada must do all kinds of work, be practically "Jack of all trades," in order to employ his steam engine, and the factory equipment.

So far we have examined only the disastrous effect of a restricted market upon the manufacturer, but the Canadian farmer is to be considered, he represents a large percentage of the population, and he has wares to sell no less than his city brother. And right here a strong side-light is thrown upon the question by a reference

to the very large number of British-born among the population of the United States, who want the produce of the Canadian farmers. I may venture to speak for this class, being a representative of them myself. I am one of those Englishmen who, having tried in vain to find scope in Canada, came to the United States and did well. We do not sufficiently realize that the entire population in Canada is only equal to the approximate number of British-born persons living in the United States. Here is a practical duplicate of the Canadian market just over the borders, whose trade is almost wholly lost. This large representation of the British race in the United States is really only a fraction of those who are of British descent, for of the great population of over 70,000,000, forty-six per cent. (32,200,000) claim British ancestry and recognize England as their first mother country.

Now this great British-descended constituency in the United States are very apt to give preference to the products of the Canadian farmer. Let me mention a few of the overlooked productions—the things lost from view in most considerations of the question. The fruit of the north is luscious, and it ripens at a time when fruit grown further south is ordinarily getting to be past its season. The late cherries, late strawberries, and late plums would easily be in great demand, while the black currants and gooseberries, which are not grown in the United States, would find a quick and profitable market. I believe the British in the United States would prefer to drink Canadian beer made from Canadian malt; they would give a decided preference to Canadian Club whiskey and Canadian cheese. Have you ever thought how Canadian wares now get preference with the millions of Britishers in the United States, and how they would prefer to use Canadian wares, if they could get them without discrimination; that is, if Canada had the Laurier freest trade relations with the United States? Canada would then do manufacturing many times what she does at present. The manufacturers of Canada are entirely wrong to assume that under the "freest trade relations with the United States" Canada would not hold her own in manufactures. Facts abundantly show that manufacturing to the largest extent is always done in "that climate that is best to labor in." That is why the north of Europe and America do the most of it. Quebec, Montreal and Toronto have the best climate in the world to work in, and if they could get a market of 75,000,000 of customers, Canadians may be confident that they will get their share of the work, and get prosperity in proportion, and not have to send one-fifth of her entire population, and that composed of her most vigorous young men and maidens, across the border to get work, prosper and propagate there. In this whole question the fault does not lie with the Canadian people. They are not idle, or shiftless, or inefficient. They are the best brain, brawn and sinew of the best races. The fault lies in the fact that, commercially, they are "bottled up." Take any 5,000,000 group of people on this continent—pick the group anywhere—and corner them up in this manner, and see if the result is not the same. It is not the people. Neither is it the country. Why should not Toronto stand just as good a chance in this continental market as Detroit? Detroit is only just across the Canadian line, and this is so with a great number of other prosperous United States cities, scattered along just below the Canadian line—Minneapolis, St. Paul, Milwaukee, Cleveland, Buffalo, Rochester, Toledo, etc., etc. These cities are practically identical as to location with the few cities of Canada. But with a market of 75,000,000 of customers. Let Canada secure this market, and then, instead of devoting her attention to producing for the 5,000,000 now in Canada, she can focus her agencies on the business of the 70,000,000 of people who are just south of the line.

I must not trespass longer on your time, but may I, in closing, venture, without presumption, to say what is in the minds of millions of the British race, both in Canada and the United States, as they follow your beneficent plans. You are believed to be the destined commercial saviour of Canada. You are looked upon by Canadians as the country's best hope. We trust that you will not let the mother country seduce you with an empty title. England's greatest men—Gladstone, Herbert Spencer, and their brilliant com-

pany—refused titles for themselves. They were perfectly willing that others should have them. Indeed, Gladstone gave orders for them by the dozen, as good Queen Victoria orders jewels or Indian shawls, but, for himself, Gladstone knew that his unwritten patent of nobility ran straight through the history of his great achievements, and was countersigned in the heart of every true Englishman all over the world. Yet we have noticed, time and time again, when there has come up a "champion of this people," that he has been called home to London, and won over to British interests by the retainer of a title. We hope you will stick to Canada. Remember that the Canadians gave you your opportunities, and now, supported by their appreciation of your great success, we hope you will continue to give to Canada your undivided allegiance, keeping both eyes watchfully open to the interests of the Canadian people. The man or country that cultivates successfully its own domain is the best hope of mankind. If you, Mr. Laurier, will look out for Canadian trade interests, there are plenty of Britishers at home who will look out for the British trade. Be satisfied with Canadian applause. We have so often been disheartened, just when we felt sure that we had a real champion, to see him enticed to London and offered an empty title, for which Canadian interests have so often been relinquished. How would it be if our mayor and Governor Pingree, who has worked for "our good, sure and entire," was sent for to London and given an empty title, practically on the understanding that he would work for London interests, instead of the interests of Detroit and the United States. Canadian interests are not always identical with English ambitions.\*

No! Keep close to the Canadian people. Do nothing to jeopardize that complete confidence which they have in you. Work out the problem of Canada's future commercial prosperity untrammelled by class partizanship and English interests. Work for the people at large, for the whole people, and your victory and your reward are assured.

T. G. CRAIG,  
Detroit, Mich.

### THE WINDING ROOM IN A HOSIERY MILL.

All yarns not in such condition that they can be used direct in knitting have to be prepared for the knitting machine by a process of winding. This is usually a mechanical process carried out by winding machines. In some mills, says J. H. Quilter, in the *Textile Manufacturer*, the winder, whose occupation is the winding of the yarn, has to fetch the yarn from the yarn room. This being the case, it is often found that the yarn manager also has charge of the winding room, or, if these departments are sufficiently large to warrant each being under distinct control, it should be a custom for the two managers to work in harmony and have frequent consultations, in order that the best results be obtained. However, in this case we will treat the winding department as a separate one, to which the yarn is supplied in bulk from the former department in lots as required—namely, in cop yarns by the case, and bundle yarns, say by the hundred weight, or less, as required. A winding-book should be kept containing the names of each winder, so that the quantity, size, quality and price of winding can be duly entered to each name as they respectively have same given out to them. Each hand should also have a book in which a copy of such record is kept for the benefit of the hands themselves. If the yarn is given out from this department, the same remarks as to careful handling also apply here.

The winder usually has a machine at her disposal containing a

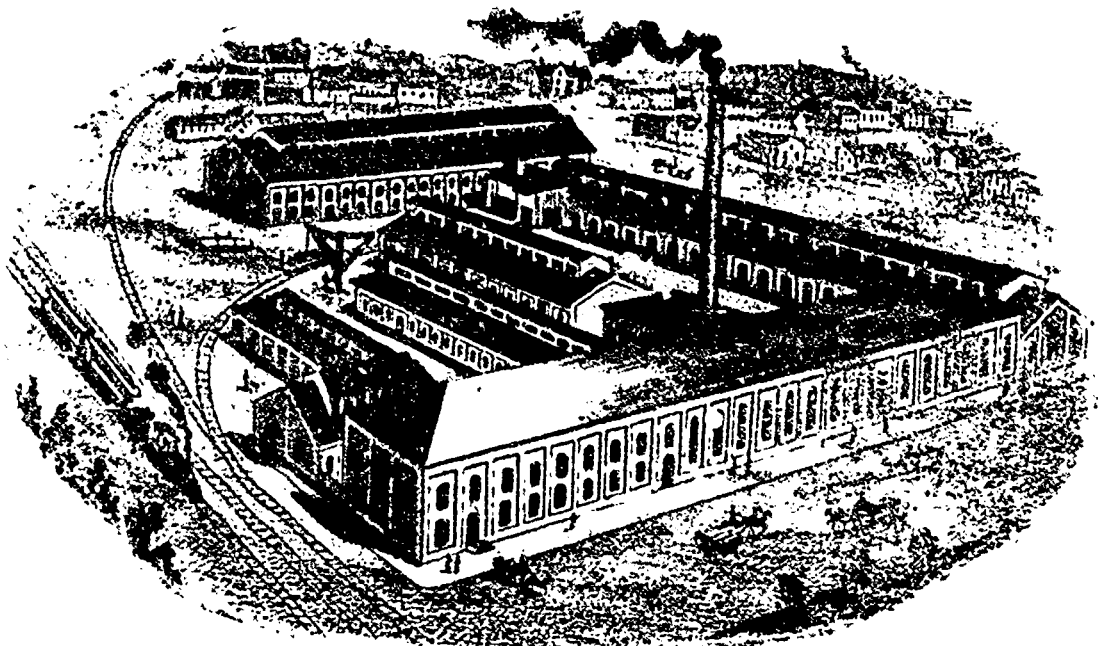
number of spindles sufficient for her to attend to properly. It is her duty to keep the machine clean and in proper working condition. Each operative should have proper baskets to fetch and carry the yarn in, and also proper accommodation should be provided for the yarn, as wound, as the custom of throwing aside the wound yarn on to the floor or into boxes is not a satisfactory one. It must be admitted that the lack of room in this department often prevents a proper system being carried out. One of the best systems known is carried out in a large factory where the ground floor is devoted to the yarn and winding departments, and under the control of one manager, who, at stated intervals, gives out the yarn to those requiring same. As the yarn is wound it is placed on special shelving, from which at intervals it is collected and carefully packed in skeps, each quality being kept distinct. Each skep is ticketed, and sent up the hoist to any particular floor where it might be wanted. It is the duty of a special attendant to keep up the supply of the qualities required in each room, and to collect and return the empty bobbins back to the winding room. The winders proper in this case have not to leave their room, and so give their undivided attention to their own special department. This system, properly carried out, enables a fair supply to be kept by the knitter. Of course, this system is better carried out where a large quantity of each particular yarn is used. Where small quantities of many sorts are used, the yarn is supplied direct to the knitter, who again supplies the winder, each knitter knowing the winder to whom he or she shall in every case give the yarn to. In this latter system, the knitter knows at once to whom he must complain in case of faulty winding, while on the former system it is necessary to see by constant attention that all yarn is correctly wound before leaving the room, and all defects be remedied by rewinding at once, as when once the yarn leaves the room it is somewhat difficult to trace the defect to its proper quarter.

The winding-room requires special attention from its manager, not the least important item being that concerning "waste." Each winder has a particular method of her own that requires to be watched. Some have a great failing in taking a certain length of yarn and breaking off same and throwing it away as waste before they tie together the two ends. It is remarkable how few place the two ends together and make the knot, having only the small piece of waste necessary to be broken off after the knot is tied. Each winder, if winding from hanks, should have each hank perfectly straight before placing same on the runners, and then untying the band, take that thread that runs clearest. If this is followed out carefully in yarns of ordinary quality, the whole hank can be wound without a single break. Where this care is not taken, complication often occurs, and a winder will pull from the hank considerable lengths, and at frequent intervals often break off same and throw it down as waste. Here is again a point to be carefully watched by the manager. A proper check can be kept upon waste by each winder bringing in same twice or at least once a day, when the same should be registered in a waste-book. It is almost impossible to have all the waste brought in in this way, as the room is usually littered with waste thrown down, but each day this should be collected, and a record also kept of this, and averaged on the week's total weight of yarn wound. A great saving can be effected by keeping distinct qualities of waste separate from each other. White cashmeres, naturals and colors should be kept distinct, and all yarns made from part wool and cotton, and again from those yarns wholly cotton. If proper waste-bins are kept for each variety, as stated, then at the sale of such waste far greater prices can be realized than is the average for waste where all qualities are mixed together.

Toronto is losing another well-known dry goods house. J. Sutcliffe & Sons, who have a large establishment at 182 to 184 Yonge street, and 6 to 8 Queen street west, have decided to go out of business. Joseph Sutcliffe, the senior, will retire, his two sons, Joseph E. Sutcliffe and F. W. Sutcliffe, and his son-in-law, D. E. Starr, will continue in business, a portion of the stock being taken over by one of Mr. Sutcliffe's sons and D. E. Starr, who will start a general dry goods business in Kingston. Considerable competition exists for the lease of the premises, which are very desirable for retail trade.

\* Yet every one of our great self governing colonies possesses the power to protect against England its nascent industries—a power that even Mill and the straightest faced of the ultra Free Trade schools have admitted to be only just and necessary. Every one of our colonies uses that power freely, and it is a mere commonplace to say that the British Parliament would never dream of interfering. That it is admitted that if we were to interfere, we would be repeating Lord North's colossal blunder, when we choked off the thirteen original United States colonies, and should run the risk of destroying our Colonial Empire" (Extract from an article by Sir Roper Schibridge, K.C.I.E., article on "Indian Cotton Duties and Imperial Federation," page 874, October, 1886, in *Imperial Asiatic Quarterly*.)





WORKS OF S. MORGAN SMITH CO., YORK, PA.

**MCCORMICK TURBINES.**

York is one of the many noted manufacturing centres in Pennsylvania, and prominent among the manufacturing plants found in that city is that of the S Morgan Smith Company. The buildings are chiefly of stone and brick, and are more than 1,100 feet long and cover several acres of ground. This plant has been built within the past six years and equipped with new and modern machinery. The old shops, in another part of the city, formerly used by S Morgan Smith in the manufacturing of water wheels and mill machinery, are used by other parties for the manufacturing of different lines of goods.

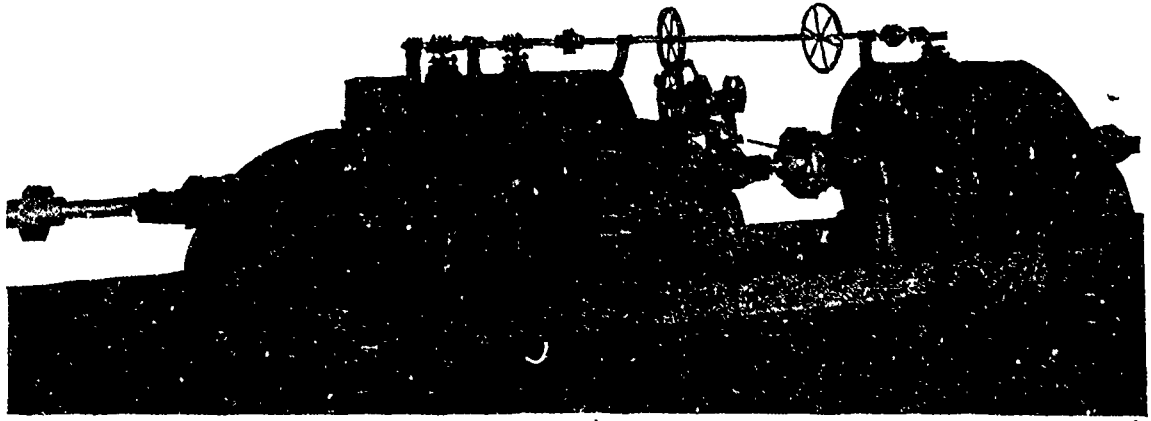
The many railroad tracks, travelling cranes and elevators in use upon the premises and within the buildings are so well placed that

all articles of machinery manufactured, whether in their crude or finished condition, up to 60,000 pounds weight, are handled as readily as a farmer handles his ploughs upon the farm, or the merchant his goods in the store. The plant is supplied with the latest and most improved machine tools, such as boring mills, pit lathes, shafting lathes, planers and whatever else is needed in the construction of turbine water wheels, iron flumes, shafting, pulleys, gearing, steam boilers, etc.—some of the boring mills and pit lathes being large enough to allow of pulleys, rope sheaves and fly wheels being turned off and bored out, as great as 25 feet in diameter and six feet wide upon their face. There are also some remarkably large and fine machine tools for cutting and dressing gear wheels up to 20 feet in diameter and as much as 30 inches on the face.

On looking through this shop and noting the many massive and



This engraving represents two pairs of horizontal 42 inch McCormick turbines, mounted in iron cases on horizontal shafts. They are coupled together, and the power is taken off at the end of the water wheel shaft, which extends into the mill by three rope sheaves 10 feet in diameter, having 45 grooves for 1 1/2 in. ropes. There is also a 27 in. McCormick turbine on horizontal shaft, direct connected to a 1,000 gallon fire pump. This turbine also drives the dynamo. The combined power of these turbines is 2,500 horse. The water is supplied to the turbines by two pipes 10 feet in diameter, which are attached to the sides of the wheel cases. The entire outfit was built and erected by the company at the new No. 3 mill of the Clifton Manufacturing Co., Clifton, S. C.



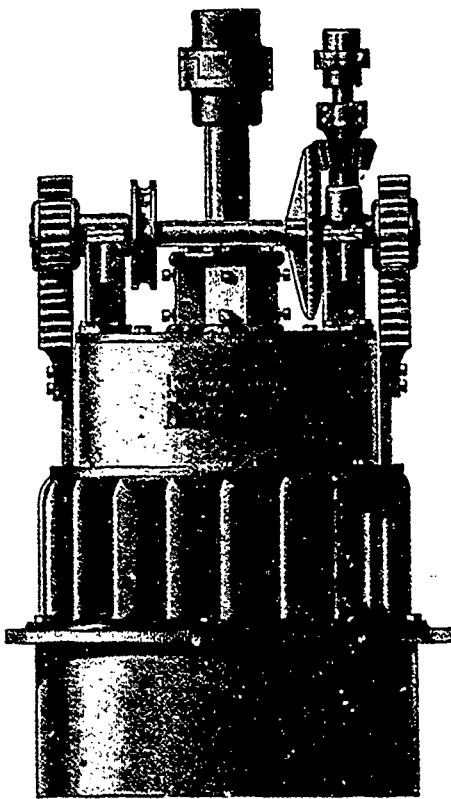
This engraving represents one pair and one single 21-inch McCormick turbines, mounted on horizontal shafts in iron cases, operating under 64-ft. head, the ice manufacturing plant of Chas. T. Westcott, Baltimore, Md. By means of the Worrall friction clutch between the pairs and the single wheels, the latter can be disconnected from the former, when it becomes necessary, owing to lack of water, to operate but two wheels. A shaft about 60 feet long is connected with the shaft of the turbines and on the extreme end of it is a rope sheave, from which the power is transmitted to another rope sheave, located in the mill, about 200 feet distant. The water is supplied through a pipe about 125 feet long. The entire outfit was built and placed in position by this company.

modern tools it contains and the conveniences for handling every article manufactured, one readily understands why it is that the McCormick and New Success water wheels and other machinery for cotton, paper, pulp, flour and saw mills, so extensively built and sold by the S. Morgan Smith Co., give such excellent satisfaction.

The company is composed of father and three sons, who own nine-tenths of the plant. All of them are hydraulic and mechanical engineers, as well as practical business men. These facts explain why it is that the buildings composing the shops are so well constructed and arranged, why all the railroad tracks, travelling cranes, trolley lines, elevators, boilers, engines, cupolas for iron and brass foundries and great lathes and boring mills, are each and all seemingly located just in the right place. An important feature

and testing these water wheels, and in this way they know the speed and power of each size of their water wheels so perfectly, that when informed as to what power is needed, and head of water available, they claim never to make a mistake in the size and number of water wheels required to operate the plant to the best advantage.

The McCormick wheel is the invention of John B. McCormick, who also invented the Hercules wheel and did much toward the designing of the Victor wheel. The McCormick is his latest invention, and embodies new points of merit in its construction. It is very heavy, strong, well-built and nicely finished. It is a cylinder gate wheel. The gate consists of a ring or cylinder, which is raised or lowered by means of the gate operating device, thus regulating the flow of water to the runner. The guides through which the water passes to the runner are stationary. The gate is balanced, thus making it operate very easily. Hundreds of these wheels are in operation throughout the world, driving all kinds of machinery. A great many have been sold in Canada. The following is a list of some people in Canada who are using McCormick wheels furnished by this company—Sault Ste. Marie Pulp and Paper Co., Sault Ste. Marie, Ont., 18 vertical 51-inch; E B Eddy Co., Hull, Canada, 2 pairs of horizontal 42-inch, Riordon Paper Mills, several different sizes; the Montreal Cotton Co., Valleyfield, Quebec, 2 60-inch, together with gears and shafting, and a duplicate of this order now being built for the same company; Municipality of Valleyfield, Que., a 60-inch, together with gears, shafting, friction clutches, etc.; Milton Pulp Co., Milton, Nova Scotia, 4 33-inch; Morgan Falls Pulp Co., New Germany, N.S., 3 33-inch; Sissiboo Falls Pulp Co., Weymouth Bridge, N.S., 1 45-inch, 1 27-inch, and 2 33-inch; Farnham Electric Light Co., Farnham, Quebec, 42-inch; G K Nesbit, Cowansville, Que., a 27-inch, etc.



of the plant is the many windows in the ceilings and walls, flooding every department through the day with light, and at night the whole is illuminated with arc and incandescent lights, supplied by the company's dynamos. Large sums have been spent in improving

THE CHINA COTTON TRADE.

The following gives the amount of shipments of Canadian and American cottons (so far as they go over the Canadian Pacific) to China, the figures being for the calendar and not the fiscal year. These cottons run at about 3 1/4 to 3 1/2 yards to the pound—

	Can. Cottons, Lbs.	Am. Cottons, Lbs.	Totals, Lbs.
1887 .....	1,742,205	4,055,970	5,798,175
1888 .....	2,009,974	6,816,798	8,826,772
1889 .....	886,322	12,245,150	13,131,472
1890 .....	2,279,150	17,079,730	19,358,880
1891 .....	2,466,944	7,413,167	9,880,111
1892 .....	1,825,259	4,322,452	6,147,711
1893 .....	1,742,312	9,321,205	11,063,517
1894 .....	3,770,343	4,303,701	7,074,044
1895 .....	3,521,004	5,208,654	8,730,158
1896 .....	3,392,042	11,834,372	15,226,414

### LOW CLASS UNION DYEING.

Low class unions are low qualities of cloth, consisting of shoddy or extract woolen weft and cotton warp. The material for the weft is obtained by submitting waste rags (cotton and wool) to the action of hydrochloric acid gas in a large slowly-revolving iron cylinder at a temperature of 212° F. The material obtained in this way is torn up or "pulled," carded, spun, etc., and woven up with cotton. The lowest qualities of cloth consist wholly of shoddy weft and cotton warp, somewhat better qualities contain new wool admixed in the weft. On a broad average, the pieces, as sent to the dyer, vary in length from 60 to 90 yards, and in weight from 125 to 224 pounds. A considerable quantity of oil is used during the preliminary operations, and therefore, after weaving, the cloth is scoured and milled, and is then ready for dyeing. Soap and soda-ash are the scouring agents most usually employed. Sometimes if a poor oil (*i.e.*, one which does not easily form an emulsion) has been used in the manufacture of the cloth, it must be scoured twice, and such cloth does not dye well. The scouring operation is conducted in the dolly. After scouring the cloth is milled. During this process the cloth loses its open appearance, and becomes considerably thicker. Cloth is generally milled up to a certain breadth, considerable skill being required to govern the shrinkage. As regards the actual dyeing processes, several methods are adopted in practice, varying according to the shades required. The following is an outline of these methods, says W. Dickinson in the *Dyer and Calico Printer*:

1. The woolen weft is dyed with an acid aniline coloring-matter, the piece is washed, the cotton is then burl-dyed, and given a final wash off. This method is chiefly adopted for common blues and blacks. The pieces are entered cool with about 2 per cent of coloring matter and 2 to 4 per cent. sulphuric acid, with or without Glauber's salt. The dyebath is raised to the boil in half an hour and boiled for 1 to 1½ hour. The following coloring matters are largely used for dyeing in this way. Soluble Blue R (Levinstein), Blue 11138 (Leonhardt), Blue 6793 A (Leonhardt), Cyanol (C), Acid Violet 7B, and Naphthylamine Black. After dyeing the woolen the pieces are washed and burl-dyed. The real purpose of burl-dyeing is to so blacken the cotton that it cannot be easily seen. It may be noted that the term "burl-dyeing" was originally applied to the processes used for dyeing the specks of vegetable matter or "burrs" present in Australian wool. Now, however, this term is also applied to the operation of blackening the cotton woven up with the wool. The process depends upon the formation of a black tannate of iron compound within the cotton fibre. It is carried out in the following way: The pieces are run for 2 hours through water to which myrabolams extract has been added, commercial "nitrate of iron" (ferric sulphate) is then added to the bath and the pieces are run through forty minutes longer. For most blacks, and for many dark colors, the process is repeated, but the duration of the myrabolams bath is shortened to one hour. Of course, by this method only shades varying from pale grey to grey-black can be obtained, the object being to preserve the cotton from detection as much as possible. Instead of the extract, dry ground myrabolams may be used, but in that case a considerable quantity of the tannin-matter must be employed, and the process must be prolonged to 3 or 3½ hours (instead of 2) to allow the proper penetration of the fibre. On the whole it is cheaper to use the extract. The actual amounts used cannot be very well indicated without practical illustration, but it may be noted that for the production of a grey-black on the cotton of a piece weighing 250 lbs., the following quantities were used: 36 lbs. of myrabolams extract, 3 gallons nitrate of iron. One gallon of myrabolams extract weighs about 12 lbs. For some shades of grey the cotton is not burl-dyed in the ordinary way, but is stained with an inky solution made by boiling logwood in water for an hour or so, then adding a little bichromate of potash, boiling a short time longer, and allowing to cool.

2. Another method is to mordant the woolen with bichromate of potash with addition of sulphuric acid, wash, dye the woolen with dyewoods or alizarines, wash, and burl-dye the cotton. In mordanting, 2½ per cent. bichromate and 4 per cent. sulphuric

acid are usually employed. The piece is then simultaneously mordanted, and to some extent stripped. This process is usually about 1½ hour in duration, and is generally used for dyeing browns. After mordanting, the piece is dyed with sanderswood, the shade being modified with madder or fustic. The shade must be kept a little redder than will be ultimately required; the slight yellow tint given to the woolen in burl dyeing will neutralize this, giving the desired shade. Besides being used for browns, this method is also used for dyeing fast blues. These are obtained by dyeing the mordanted pieces with Alizarine Blue and logwood, and then burl-dyeing. The burl-dyeing is carried out in all cases exactly in the same way as in method 1.

3. A third method consists in stripping the woolen with sulphuric acid, with addition of a little bichromate of potash, washing, mordanting the cotton with myrabolams extract and cotton spirits, washing, and dyeing the woolen and cotton together with basic coloring matters. This method is employed when it is desired, not merely to blacken the cotton, but to dye it the same color as the weft. For stripping, 4 per cent. of sulphuric acid and half per cent. of bichromate of potash are usually employed, and the whole operation, which is conducted just below the boiling point, is not prolonged more than five or six minutes. The purpose of this operation is to remove some color from the weft, which, as has been previously pointed out, is obtained from rags. After stripping, the pieces are washed and the cotton is mordanted. The operation of mordanting the cotton is generally referred to as "spiriting." Spiriting is performed by passing the cloth 1½ hour through water containing myrabolams extract, using two gallons of extract per piece, then adding cotton spirits (stannic chloride), previously diluted with water, to the same bath and passing the pieces through 40 minutes longer, the whole operation being conducted in the cold. After spiriting it is most important that the pieces should receive a thorough washing in the dolly. Usually the pieces are washed from 1½ to 2 hours in cold water. If the washing at this stage is not very thorough, the pieces are liable to assume a bronzy, undesirable cast on dyeing. The dyeing operation comes next. In this case only basic coloring matters (*e.g.*, chrysoidine, safranine, etc.) are applicable. The dyeing is first performed for about one hour in the cold until the cotton has taken up almost sufficient color, and the liquor is then gradually raised to the boil to dye the woolen.

4. A fourth method is to strip as before, wash, dye the woolen at the boil with acid coloring matters, wash, mordant the cotton as before, wash, and dye the cotton in the cold with basic coloring matters. This method is chiefly used for the production of a very dark crimson shade on a specially made cloth. Instead of taking rags of all colors and carbonizing them as noted before, only the red woolen rags, which need no carbonizing, are chosen out. These are pulled, carded, mixed with a little fresh wool, spun, woven up with cotton, scoured, milled, and the pieces sent for dyeing. After stripping, as in method 3, these pieces are dyed with Scarlet 3R (*i.e.*, an ordinary acid coloring matter), raising gradually to boil, and boiling one hour. The cotton is then mordanted, as in method 3, and the pieces are passed through a solution of neutral magenta for about one hour in the cold. The color may then be brightened with a little alum.

In conclusion a word may be said concerning the black dyeing of these goods. Blacks are chiefly obtained by method 1. The woolen weft is first dyed with an acid black (Naphthylamine Black and Naphthol Black C give good results), and the pieces are then twice burl-dyed. An excellent logwood black is obtained on these goods by mordanting the woolen weft with bichromate of potash and sulphuric acid, washing, burl-dyeing (*i.e.*, mordanting the cotton with iron), washing and dyeing the wool and cotton together with logwood. The temperature of the dye-bath is raised up to the boiling point in the course of half-an-hour, and boiling is continued 1½ hours. From 35 to 40 per cent. of logwood gives a good black on these goods. Logwood blacks, however, are only occasionally dyed, the aniline blacks being usually preferred. Experiment showed that blacks dyeing the wool and cotton direct in one bath were unsatisfactory for these goods on the large scale.

After dyeing, the pieces are passed through a wringing-machine, then through the centering-machine (*i.e.*, drying) and are then passed on to the "percher," who examines the pieces for defects.

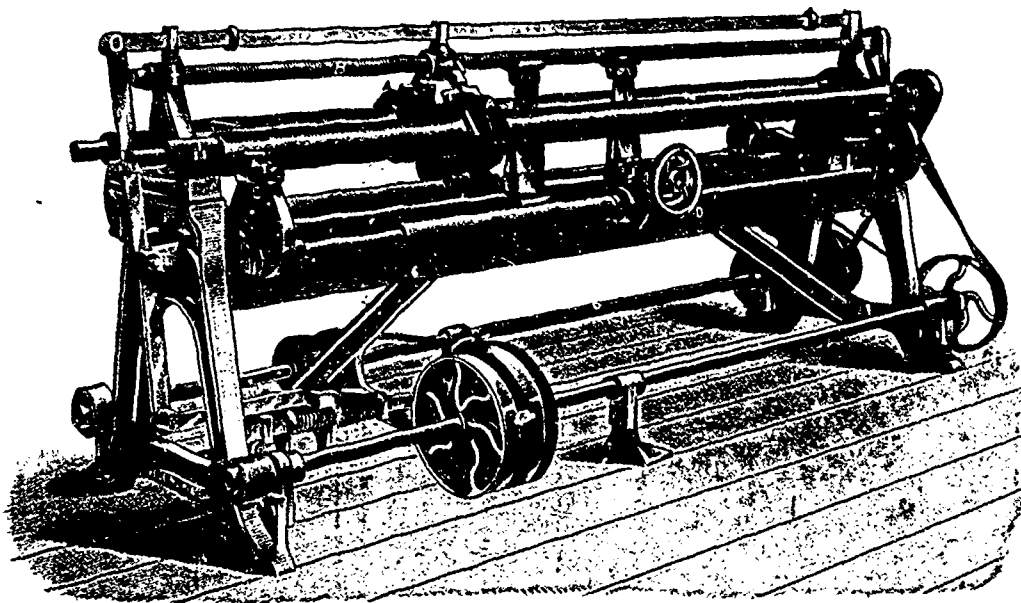
**DRONSFIELD'S PATENT GRINDING FRAME.**

This machine is for grinding and pointing the cards on rollers of cloth-raising machines. The method of grinding these cards hitherto has been by running the card teeth together in contact, but this method has been found unsatisfactory, it is said. The method adopted in this machine is a modification of the plan used in cotton mills for card rollers, and the results obtained by the machines now working have been eminently satisfactory. The machine is fitted with two of our patent grinders *A*, which are traversed by a screw *B*, mounted above the grinding discs; the screw is fitted with a reversing motion, shown underneath the machine, so that the length of traverse can be regulated to grind various lengths of rollers. The frame is arranged to grind two rollers at a time, one on each side of the machine. The card rollers are placed in the steps *C*, which are adjusted by the hand-wheel *D*, which sets the steps at each end simultaneously. An adjustable

tending across the mouth or bore of the adjacent spool, the free or front ends of which latch bars normally rest in plates or sockets which constitute the terminals of the respective coils or solenoids, a pair of plates or sockets, independent of the plates or sockets first named, located respectively a short distance from said respective sockets first named, and adapted to be encountered by the latch bar when said bar is moved away from said plates or sockets first named, and a conductor by which the two solenoids are connected in series, said conductor being connected with both of the second-named plates or sockets, and a shuttle formed as an armature, which, in its travel, passes beneath said latch bars and elevates them into contact respectively with the second named plates or sockets, substantially as set forth

54,251. The Weaver Jacquard and Electric Shuttle Company, of Norwalk, Connecticut, U S A, has patented a loom which is described as follows:

The combination in a loom, of the lathe, a movable race con-



DRONSFIELD'S PATENT GRINDING FRAME.

stop is fitted to the setting motion, so that each roller can be ground to one uniform diameter; the steps can also be moved inwards so as to take in shorter lengths of rollers. One of the grinders is fitted with an emery wheel adapted for and covered with patent grooved emery filleting for surface grinding; the other grinder is fitted with a special boss, fitted with consolidated emery rings for grinding the sides of the card teeth, and the roller which is being side-ground is reversed in its revolution at each end of the traverse of the grinder, so that the grinder can follow the spiral of the card fillet, by which a better point is obtained.

**RECENT CANADIAN PATENTS.**

54,243 Elmer Gates, Chevy Chase, Md., U.S. has invented and patented in Canada an electric loom which he describes as follows:

In a loom, a shuttle formed as an armature, and means for throwing said shuttle consisting of a pair of coils or solenoids mounted at the respective ends of the shuttle race, an electric generator in circuit with said coils or solenoids, switches adapted to be opened to throw said coils out of circuit and placed in the path of said shuttle so as to be operated by it. In a loom, in combination, a pair of solenoids mounted on hollow spools located at opposite sides of the loom, an electric generator, line wires, leading from the generator to the vicinity of the respective solenoids, and each of which is in circuit with a conducting pivotal latch bar ex-

sisting of a series of parallel blades supported movably upon the lathe, and means for shifting the same, and a roll bearing upon the fabric, and means for depressing the roll to carry the fabric out of the way of the blades, substantially as set forth. The combination with the lathe provided at each end with two shuttle boxes, of suitable shuttle actuating means, a shuttle-race consisting of blades or bars supported in sections, means for automatically, positively and successively moving the sections into and out of position between opposite shuttle boxes, and means for fully opening the warp to either or both shuttle races, etc.

54,263. The Weaver Jacquard and Electric Shuttle Company, Norwalk, Connecticut, U S A., has patented the following.

In jacquard mechanism for looms, the combination of suitable warp-supporting devices, a lifting and depressing board and means for moving the lifting and depressing board above and below its normal position respectively, the combination of the shifting needles, pattern devices provided with recesses adapted to be engaged by the shifting needles, means for positively withdrawing the shifting needles from engagement with the recesses of the pattern devices and adjusting devices within said recesses, whereby the extent of the engagement of the recesses by the shifting needles is regulated, the combination of the warp-supporting devices, a suitable lifting and depressing device adapted to move above and below its normal position, means for operating the lifting and depressing device and pattern-controlled mechanism for moving the warp-supporting devices into engagement with the lifting and depressing device, substantially as described, etc.

54,426 G. Browning, W. A. Johnson and F. H. Maydwell, Hinsdale, Illinois, U. S. A., have patented in Canada an appliance for selvage weaving, which is thus described

An improvement in the art of weaving selvages, the same consisting in introducing a separate thread in the form of succeeding loops into the sheds along with the weft threads and beating the same into the cloth by means of a reed, the combination of a needle carriage having a compound lateral and longitudinal reciprocation, a loop-forming needle attached to such carriage and carrying a separate thread, and means for imparting the compound movements to said carriage substantially as set forth. A pair of needle carriages having a compound lateral and longitudinal reciprocation, are combined with a pair of loop-forming needles attached to said carriages, one of which needles is set in advance of the other, and means for imparting the compound movements to said carriages, substantially as set forth, etc

## Foreign Textile Centres

**MANCHESTER** Employers usually in almost daily communication with Manchester, have left Bombay in order to escape the plague, and their subordinates, left in charge, are naturally anxious to join the exodus. "Freight jobbers," as they are termed, have also fled the stricken city, the mill hands are disappearing in the general flight, and a leading commercial journal published in Bombay begs indulgence for the delay in the appearance of a recent issue, "caused by absence and death among the printers' workmen." The Bombay trade is, in fact, completely disorganized, and while Calcutta has of late been taking moderate quantities, shipments to the western coast of India have been very small. It seems strange to stay-at-home Britons to read in an Indian journal that coolies, or office *hamals*, who go to Bombay to enjoy the advantages of good wages and constant employment, insist upon creating disease by using the street as a latrine or throwing night soil from the windows in the early morning. Bombay is as filthy, from the sanitary standpoint, as Calcutta, which Kipling has vigorously stigmatized, and for all the neglect of sanitation implied by the existing condition of affairs in the dependency Lancashire is now suffering. The Indian trade is, in fact, very depressed indeed, and looms principally engaged on Indian goods are stopping all over the country. There are probably 150,000 to 200,000 power-looms dependent more or less on the Indian trade for steady work. In the Burnley district the employers have notified a demand for a ten per cent reduction in wages, and trouble is threatened. The cloud has burst unexpectedly, but it is not likely a serious wages struggle is really probable. The prospects of the Manchester home trade depend largely upon the course events may take during the next few weeks.

**ROCHDALE**—In the flannel market nothing was done lately beyond the range of small sorting-up orders. The London sales have had a marked influence on manufacturers. Flannel wools have sold at the close at very firm rates. Prices are likely to be well maintained, which will simplify the arrangements of the trade. Next season's samples will shortly be out, and meanwhile many manufacturers are restricting production.

**KINDERMINSTER** Matters have somewhat improved in the Brussels trade, but orders come in only quietly. The Axminster makers are busy. No increase of the yarn trade can be reported, but for all that the market is in a more reasonable state. It has been talked into an absurd position, but enquiries have shown that it is not quite so feeble as might have been thought. Yarns are relatively lower than wools, and, except for irregular oddments, prices are pretty firm at a low level.

**LEICESTER** In the local yarn market the turnover is of fair extent, but spinners are unable to secure better prices, buyers resisting all efforts to establish an advance. There is a steady and healthy demand for lambwool and cashmere yarns at late rates, and users are covering actual needs. The hosiery industry is fairly active in all the leading branches, and production is being pushed

forward to meet early spring deliveries. The demand for choice underwear goods is improving, and the production will be above the average. Elastic web specialties sell freely, but broad webs are a dull trade.

**BRADFORD**—Since the conclusion of the London colonial wool sales, there has been very little change in any department of the wool trade here, and business may be described as quiet but firm. Fine merino wools and tops show a tendency to harden in price, and the reports from the United States foreshadowing an early re-imposition of the duty on imported wool seemed to be creating a greater disposition to speculate on the part of consumers. The developments in Eastern Europe have, however, had the effect of again reducing business to nearly the old level of dullness. Cross-bred wools, both colonial and home grown, continue quite firm, and there has been rather more movement in the kinds most suitable for hosiery purposes. There has been some buying of down wools in the Shropshire district on American account. Some of the most recent operations in English lustre wools on American account were put through at prices slightly under the market quotations previously ruling here, and there has now been some buying of wether wools on home account at similar rates, but the longer hogg or first year's wools have been to a great extent neglected. In raw mohair and alpaca there have been no new transactions of moment reported, but there is a much better demand for mohair crepon yarns, and the frequent recurrence of very low offers for mohair braid and plush yarns from the continent leads one to expect a revival of actual business in these yarns at an early date. In the yarn trade there are more numerous offers at a very low price for two-fold bundle yarns and warps for the export trade, and spinners are also getting more business from the home manufacturers for worsted coating yarns, both from the Bradford and Huddersfield districts. In the piece-goods trade there is not any marked improvement, and some of even the leading dress-goods manufacturers have still a good deal of idle machinery, but this very fact will have the effect of keeping the trade in a more healthy state than if stocks were being piled up unreasonably. All the manufacturers who make the production of fancy dress goods a specialty are fairly well employed. As is usual after a quiet winter season, the spring dress trade is very late in opening out, and although we are now past the middle of February, no distinct line of fashion has yet been defined, and travellers seem to be selling a little of nearly everything. Very good makes of mohair Sicilians and neat coating styles are being bought in drabs and grey shades, and the new mohair crepons in blacks are also being well repeated, especially in the most expensive styles. The most successful styles in shot silk warp effects are the plainest and neatest in good cloths which are finished to resist the effects of the rain and damp.

**LEEDS**—The clothing trade in Leeds continues to improve. Not only are there few idle operatives connected with any branch of factory work, but many of the leading firms are short-handed. The prospects of the season continue very good, especially for the home trade, and the demand for serges of the rougher finish and tweeds continues very good, but worsteds and curls are not quite so much inquired for. There have been recently a few orders placed both for woollens and worsteds on American account, but the best informed men in the trade say that there will be no great rush in business in this market, as the present weak condition of some of the importers will not be improved if all the goods lying in bond in New York have to be freed from bond with gold or come into the same list as newly imported goods as regards the new duties. In the heavy woollen districts, although business is still quiet, there is a rather better tone evident, and both the makers of light woollens in the Morley districts, and for cheap suitings for the clothing trade, are busier.

**HUDDERSFIELD**—The dullness prevailing all over the Yorkshire textile manufacturing district is not relieved in Huddersfield. Practically all departments are depressed, and manufacturers have to content themselves with living in hopes of a revival for the spring trade.

**NOTTINGHAM**—The comparative briskness which marked several of the departments of the lace trade, still continues, but the

promise it afforded—or seemed to afford—of even better things has not yet been fulfilled. On the whole, however, there is little room for complaint. If the Nottingham lacemaker laments that he no longer has a virtual monopoly of the world's trade in machine-made lace, he cannot deny that the commodity which he produces has been treated to a really good run of favor during the last year or two. One of the latest uses to which lace is put is as a trimming for cloth coats. From all the indications it looks as though the innovation would take the popular fancy—at least until it becomes imitated in very cheap costumes. Some of the foremost London tailors are now finishing the sacque coats with deep square collars edged with embroidered lisse or handsome rich guipure. The jobot has not yet made its appearance, but it is quite probable that it will soon follow upon the new lace collar. Special varieties of Valenciennes, Point de Paris, Orientals and other fine laces are selling freely just now, and some assortments of stiff Valenciennes loop edgings and crochet goods have also been moving for home and foreign account. The improvement in these lines is not spread over the whole trade. While many manufacturers are quite full for some little time to come, others are unable to keep their machinery running full time. There is a moderate demand for silk Chantilly and guipure laces, but it is not sufficient to encourage manufacturers either to launch novelties or to accumulate stocks. Chenille falls and veilings are steady, but there is an over-supply of ordinary goods, and satisfactory prices are difficult to obtain. Ruchings, caps, aprons and other fancy goods are in brisk demand, and the prospects in these departments are encouraging. Irish trimmings, Swiss embroideries and everlasting trimmings are slow. The fact is that much of the trade is being diverted to Germany. Bobbinets, Mechlin tulle, mosquito nets and other descriptions are all moving in large quantities, and nearly all available machinery is fully employed. Prices still have an upward tendency. Paris and other stiff foundation, nets are not so brisk as in former years. Silk Mechlin and Chambray tulle are firm in value, and orders are in arrear. In Manchester continental embroidery manufacturers have been selling quantities of light tulle laces. Black or ecru, in conjunction with gold, are included among the patterns sold, and insertions on tulle or muslin have been bought. Crepe lisse, with colored lace, has been used for hat ruches, the demand for which this year promises to be large. Ruches are also used extensively for capes and parasols. Guipure for dress trimmings is in moderate request, and bolero fronts in open steel embroidery have also been shown. Ivory shades in Orientals and Valenciennes are selling to a moderate extent, and net tops in cream meet with a fair share of support.

**SOUTH OF SCOTLAND**—There is no improvement to record in the South of Scotland tweed trade. Prospects are anything but good, and altogether manufacturers are rather despondent. A considerable number of looms are idle. Repeat orders are still scarce. Spinners are not doing much. The briskness of trade in the Kirkcaldy district still continues. Linen manufacturers are well employed, and there is a steady demand for floorcloth and linoleum.

**BELFAST**—There has not been much alteration in the general condition of the market lately. Business on a moderate scale has been done, but beyond purchases for immediate requirements there has been very little transacted. The flax markets are very indifferently supplied with poor flax, a considerable portion of which is unsaleable. Yarns have met with a quiet sale, and manufacturers are not disposed to go into stock even to the most limited extent. Prices show little change, and, on the whole, are fairly well supported. For brown power and hand loom linens in the various widths and weights the demand is quiet, and an accession to current business is very desirable. Some improvement is reported in damasks, and for power-loom bleaching cloth an active demand prevails. Tow goods are going steadily into consumption, and for unions there is a fair sale at recent rates. Bordered handkerchiefs are meeting with a moderate amount of attention, and for cambric cloth the demand is, if anything, stronger. The home trade in finished linens has not recovered to any extent, and business passing at the moment is altogether free from speculation. With the

States things are still very quiet, and there is but a slow demand from Canada. European markets are buying cautiously and Australia stands almost alone in showing any improvement.

**LYONS**—The silk goods market is more active, and a much better feeling prevails than was the case in January. Orders, the piling of which had been delayed last month, have been coming in, and manufacturers have found in them a compensation for the slower trade of the previous month. Parisian buyers have been rather liberal with their orders. That purchasers are somewhat short of some of the desirable goods is seen by the fact that short time deliveries were wanted by buyers in some instances, and as manufacturers were either too busy or unable to deliver within the specified time, some of the orders had to be refused. For the English market a fair, but not large, business has been done, while in American business there is still room for improvement. Cheaper grades of goods have, as a rule, received the preference in the supplementary orders for spring. Muslins and crepe lisse retain their good position on the looms and are in good demand. Marcelines and similar light fabrics are rather slow. Pongees sell. Changeable taffetas, small taffeta fancies, black and white checks and stripes, plaids, etc., have been the object of orders. Some import orders have been placed for piece-dyed linings. Black satins are liked. Surahs in black and colors find a good market. The improvement in the demand has not been sufficient, in so far as the better grades are concerned, to cause much of an improvement in the production by the hand looms, and while there is more work for the country hand looms, those in the city are but poorly provided with work. In ribbons the demand is of satisfactory proportions, with a steady movement for plain goods and staples. The velvet season has nearly closed and business has decreased to out-of-season proportions, with a limited demand for chappe pile goods from stock.

**CREVELD**—The silk goods market is more attractive, the demand having increased to more seasonable proportions, a fair volume of orders coming in regularly by mail or from travellers on the road. There is a limited demand for the better grades of dress silks, with a fair movement of these in blacks. But the business done is principally in the cheaper grades of goods, and in this movement plain staples, black surahs and merveilleux, black and changeable taffetas take a good share. Novelties, however, are not neglected, on taffeta or on Louisine grounds checks and plaids sell well. Small figure effects on taffeta find a market. Damasses have been gaining ground and will be used for waists. Black, colored and double-warp damasks are in good demand. The business done is on the whole satisfactory in volume and well distributed, the reserve shown in placing orders at an earlier period finding to some extent a compensation in a demand for ready delivery larger than it would otherwise have been. Manufacturers are preparing their fall samples, and some negotiations for the placing of fall orders have been started, but practical results have not yet been reached. The manufacturing situation is improving and production has increased, notwithstanding the fact that the orders for umbrella silks being partly complete, this source of activity for the looms is becoming exhausted. Velvets are quiet and the situation in the velvet industry is far from brilliant, with little doing for ready delivery and orders for future delivery still to come.

**ZURICH**—There is a well distributed demand for nearly all lines of goods from taffetas and Louisines to surahs and merveilleux, from fancies to plain goods, but taken as a total this business is of a small volume and seems intended only to cover the actual requirements. The weather has not been very favorable to the distribution of silk fabrics in the first half of February, and business for home and export, for the Continent, England and America leaves room for improvement. Buyers have been in the market, but are more inclined to negotiate for future-delivery orders than for ready-delivery goods. An improvement in the demand from stock is, however, likely to be felt as soon as favorable weather conditions come in to facilitate spring consumption.

**CHERMNITZ**—Although most manufacturers complain about the dull business, many of them are behind in deliveries. Goods due in December and January are not yet shipped. Quite a number of

concerns are working overtime to turn out the required goods. Every day advertisements are in the papers from hosiery houses looking for girls for their finishing-rooms, but rarely can they find the number required. Recently large orders have been received from the United States, and prospects are brightening. Buyers will only allow short time for deliveries, and nearly all goods are to be shipped in April. In fleeced goods trade has opened up fairly well—better than was expected. If orders keep on coming in as they have lately, prices will advance within a few weeks. Buyers who want to place orders for delivery in April or May will do well not to hesitate longer, as there will be a rush during those months, and orders placed late will not be filled on time. In fine-gauge goods the inquiries are very frequent and for large quantities, and orders at cut prices will be refused by the exporters. Goods in stock are still sold at the old low prices, but for those which have to be made higher prices are demanded. In tan hosiery dark reddish shades, almost garnet, are taken in nearly every assortment. Embroidered styles are selling freely in fair quantities, and manufacturers have trouble to get them done on time, as the embroidery factors are filled up for weeks to come.

## 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 Dominion Cotton Mill Co.'s mill in Kingston, Ont., is running three days a week.

H. Twigg, jr., is boss dyer in the Hawthorne Woolen Co.'s mill, at Carleton Place, Ont.

Roger Tattersall, North Adams, Mass., has taken a position in the print works, Magog, Que.

Warton, Ont., is organizing a joint stock company to start a woolen mill, capital, \$20,000.

The Consumers' Cordage Company, Ltd., has given notice that its capital is to be reduced from \$3,000,000 to \$2,500,000.

A public meeting was held recently in Harrison, Ont., to discuss means for getting the flax mill there again into operation.

Geo. Ashman has returned to Carleton place, Ont., to succeed Dan. McIntosh in the dye room of the Hawthorne Woolen Co.'s mill.

It is reported that the woolen mills at Way's Mills, Que., will be started up early in March. Mr. Dyson has moved his family there.

D. M. Fraser, Almonte, Ont., has recently placed a 30-h.p. boiler, supplied by H. W. Petrie, Toronto, in his knitting mill for heating purposes.

Chloride of aluminium, which is attracting so much attention as a substitute for acid in carbonizing, is said to have been the cause of fire in a United States mill.

John Waterhouse, woolen mill, Tilsonburg, Ont., has assigned to James Brady. The creditors will meet on the 18th. The liabilities are estimated at \$5,000.

A Montreal wool dealer has a cargo of wool lying in New York waiting for the increased duties to be put in force, which will, of course, largely increase its value.

The City Council of Brandon, Man., is petitioning the Legislature for power to loan \$8,000 to the promoters of a felt factory who desire to establish the industry in that place.

We are pleased to learn that D. Brockenridge, manager of Gillies & Co.'s woolen mill, Carleton Place, Ont., is steadily convalescing from the serious illness mentioned in our last issue.

Minnie Judge, an operative of the Dominion Cotton Company's Mill, Brantford, Ont., got the sleeve of her dress caught in a carding machine recently, pulling in her arm and tearing the flesh badly.

In the case of American Rug Works vs. Andrew Murray, Harriet Murray and Martin Fallow for infringement of patent, interim injunction was refused. The case on its merits is to come before the High Court at its present sitting.

The Messrs. Wallace expect to have the knitting factory running in full blast about the middle of April, and are looking forward to a busy season. The woolen mill will likely not be commenced until fall.—Beeton, Ont., World.

Wylie & Shaw, Almonte, Ont., have put in additional broad finishing machines lately, supplied by Paul Frind Woolen Co., Ltd. The same company has also placed a third set of cards in D. M. Fraser's knitting mill, Almonte, Ont.

We mentioned in our last issue that Andrew Murray and Jas. Hill, a friend, a weaver, had assaulted Fred. Bullock on his own premises caused by ill feeling arising out of a patent suit. P. M. Kingsford tried the case and fined defendants \$10 each and costs.

A correspondent of *Le Citoyen* says that in 90 per cent. of the factories of the city of Quebec there is an average temperature at certain hours of the day of 85 degrees, in which stifling atmosphere men, women and children, numbering from 200 to 300, have to work.

M. Grace, of Killaloe, Ont., has purchased and had delivered at that village the machinery for a carding mill and woolen factory. The power for driving the machinery will be furnished from the water and steam power of the grist mill of J. Bonfield.—Eganville Enterprise.

Things in Sherbrooke, Que., are reported to be booming. In the Paton woolen mills every part is running on full time, and some departments are working night and day. The Loomas woolen mills and Grindrod's carding mills are also working full time, and some overtime.

R. M. Livingstone, the youngest son of John Livingstone, sr., of Listowel, Ont., was killed by falling from a C.P.R. train, near Fort William, Ont., recently. He was a nephew of the late Dr. Livingstone, the African explorer. He was born in Lanark County in 1857, and was unmarried.

The Crompton Loom Works and the Knowles Loom Works have united, under the name of the Crompton and Knowles Loom Works. The transaction was closed February 10, to date back to January 1. President, Charles H. Hutchins, now president and treasurer of Knowles Loom Works.

It is possible a new company may be formed to continue the business of the Globe Woolen Mills Company, Ltd., of Montreal, which has decided to go into liquidation. About three months ago the company suspended payment, and the creditors were offered 50 cents on the dollar, which, however, was not accepted.

The new addition to the Wenger woolen felt works, Elmira, Ont., is nearly completed. The felters will be soon in and operations will begin again. A new industry is likely to be added this season in the way of a shoe manufacturing department, when felt and staple lines of leather shoes will be manufactured for the trade.

The Merchants' Mfg. Company proposes to change its name to that of the Merchants' Cotton Co., Ltd. A by-law to that effect was submitted to the shareholders for ratification at the annual meeting held on 9th February instant, as was another providing

**Wool Washers** | **KITSON** - - -  
**Dryers and Carbonizers** | **MACHINE CO.**  
**LOWELL, MASS.**

for the issue of bonds for the renewal of \$200,000 bonds maturing 1st June next.

At a meeting of the Hull, England, Vetch Committee recently, R. Gillett, the deputy-chairman, called attention to the use of flannelette for night-dresses. He stated that in five or six recent cases of fatal burning the ignition of nightdresses of this material was responsible for the fatality. It was as inflammable as cotton wool, and the public ought to be warned not to use it for night-gowns for their children.

The *Ontario Gazette* contains a notice of application for the incorporation of a new cordage company independent of all existing concerns, which is to be known as the Independent Cordage Company of Ontario. The applicants for incorporation are P. Corbett, Maidstone; G. High, Vaughan, York County; F. Gulinter, Thorold; H. Dewart, Toronto; T. C. Irving, Toronto; H. B. Smith, Yarmouth, Elgin County, Ont.

The annual meeting of the stockholders of the firm of Wm. Parks & Son, Ltd., St. John, N.B., was held in the office of that company recently. The reports submitted showed the business to be in a very satisfactory condition, considering the present depressed state of the industry. The following gentlemen were elected directors for the ensuing year: John H. Parks, president; Thomas McAvity, vice-president; Wm. Pugsley, A. C. Blair, and T. B. Robinson.

At a meeting of the creditors of James Lockhart, Son & Co., held in the office of Assignee Henderson, March 11th, the assets of the firm were disposed of as follows. The assignee's interest in the mills at Lambton and Markham, Ont., was sold to Jas. Swift, Toronto, who assumes the local liabilities, i. e., rent and wages, at Markham and Lambton. The stock of manufactured goods was sold to Wyld, Grasett & Darling. Lockhart & Co. made an offer for the Ottawa real estate conditional upon James Lockhart, Son & Co. being discharged. The estate will pay about fifty cents on the dollar.

J. W. Martin, proprietor of the Speedville, Ont., Woolen Mill, died suddenly while driving home from Galt recently. Mr. Martin's death was due to heart trouble. It will be remembered that his son, the late Samuel C. Martin, was a victim some months ago to a similar complaint. The latter had been attending an evening party at Preston, and was just leaving when he was deprived of life as suddenly as his father. The man who is gone was liked and respected by everyone who knew him. He was noted for his integrity and his kindness of heart. For the last fifteen years he had been on the board of N. D. & S. W. Farmers' Mutual Fire Insurance Company, and was president for two terms.

### THE TARIFF COMMISSION.

#### HAMILTON.

The Hon. W. E. Sanford, of the Sanford Manufacturing Company, who was accompanied by John Calder, gave the commissioners an object lesson in ready-made clothing. He exhibited two overcoats, one made by his firm, and the other made in New York. The Canadian garment was composed of Canadian wool, and linings and buttons manufactured in this country, and was sold wholesale at \$3.75. The New York coat, on the other hand, cost \$1.30. The material in it was not even shoddy, but was waste from the cotton mills. Such a garment would not stand wet or exposure. When subjected to such a test, its appearance soon went. Remove or lower the tariff, and these were the wretched goods that would come into the country.

Mr. Fielding asked whether the purchaser would not soon discover his mistake in buying an inferior coat, and afterwards seek for the superior article.

Senator Sanford agreed that possibly he would, but there would be certainly many who would meet with such an experience, and besides being to the detriment of the purchaser, it injured the woolen manufacturer and the manufacturer of clothing. Protection was having a marvellous effect on values. The Senator exhibited samples of Canadian tweeds at eighteen and twenty cents, which, before the introduction of the present tariff, cost forty cents.

Mr. Fielding—What has brought about the decrease?

Mr. Sanford—Canada has had her own market to herself so much more largely than she could take hold of these goods and manufacture them. Capitalists felt free to put their capital into manufactures, and the competition has been such as to reduce prices.

Mr. Fielding—Is it peculiar to Canada?

Mr. Sanford—It is not peculiar to Canada, but you have it to a greater extent in Canada.

Mr. Fielding—Is it not a fact that the price of these goods has fallen owing to a cheapening of the process of manufacture and improvements in machinery?

Mr. Sanford—That has had an effect, but the point I wish to reach is this—that the Canadian tweeds are not excelled in any part of the world. You may have English tweeds at the same prices that may be more showy, but no country in the world produces a class of goods that can compete with the Canadian.

The Senator pointed to a sample of Canadian tweed that four years ago he would gladly have paid 32½ cents for. The price today was 17½ cents. There was no combination to fix prices. He assured the commissioners that the tweed mills had not paid a dividend in years.

In reply to Sir Richard, the Senator stated that he employed from 3,000 to 3,200 hands, who were paid about \$600,000 a year in wages. He did not care to state just what the output of his factory was, but was backed by Mr. Calder in his statement that the factory turned out about twice as much work in a year as any other concern in Canada.

Senator Sanford produced a red tunic made by him, and a rifleman's tunic made in England. The Canadian tunic was made of wool, and the Senator thought there was no reason to be ashamed of it. He had to manufacture for only a few thousand, which was a different thing to manufacturing for the whole British army.

Mr. Fielding sarcastically asked whether the Senator would be prepared to send over military clothing if England imposed a 50 per cent. duty?

Sir Richard Cartwright—Is there anything to prevent you taking such a contract?

Mr. Sanford replied that the Riot Act would be read in Hamilton if he had to pay English prices for labor, as he would have to do if he accepted such a contract, and he would be run out of the city.

### LITERARY NOTES.

An article of absorbing interest in the March number of *The Century*, is Capt. Mahan's description of Lord Nelson's great triumph at Trafalgar. It is a stirring story, and when one has finished it he does not wonder that Englishmen idolize Nelson. The writer tells how the famous signal "England expects every man to do his duty," came to be given, and the article is illustrated by several fine engravings, among them being Turner's famous picture, "The Fighting Temeraire." The March *Century* is an "Inauguration Number," and is one of a series of special issues which will make the present year of that magazine of more than ordinary interest to its readers. *The Century* was never more popular than at present; its January and February numbers went out of print within a week of issue, and its two leading serials, "Campaigning with Grant," by General Horace Porter, and "Hugh Wynne, Free Quaker," Dr. Weir Mitchell's novel of the American Revolution, are attracting wide-spread interest.

The Galt Knitting Co., Ltd., has issued a brilliantly illustrated catalogue, "What We Do, and How We Do It." In this is set forth the good qualities of the "Tiger Brand," with which this company is devouring the profits of its competitors. A pretty photograph of the company's mills adorns the back cover.

We have received a very neat and attractive catalogue from Sadler & Haworth, long known under the style of Robin & Sadler, and Robin, Sadler & Haworth, bolting manufacturers of Montreal and Toronto. The personnel of the firm is precisely the same as



heretofore, Mr Saller residing in Montreal and Mr Haworth in Toronto. A glance at their catalogue informs us that they have begun manufacturing a high grade of belting for a class of customers who want something more than the ordinary good stock and are willing to pay a little more for it. Belting of this kind will be stamped "Crown" with the firm's name, while their well-known "Standard" brand will retain all its good points. We see that they make a special belt for dynamos and have furnished very many lighting stations and power houses in Canada. Sadler & Haworth are also heavy dealers in cotton and rubber belting, and mill supplies of various descriptions. These catalogues, with any other information, will be furnished on application to the firm at either Montreal or Toronto.

Duncan M. Macdonald, accompanied by his younger brother, Arthur N. Macdonald, both members of the firm of Messrs. John Macdonald & Co., Toronto, sailed recently for Jamaica, on a pleasure trip to the West India Islands.

The Gault Bros. Company, Ltd., Montreal, at a recent meeting of the creditors of James Robertson & Co., of Hamilton advanced money to Alex. Munro, who was formerly connected with the Hamilton firm, and who then bought in the stock, giving Gault Bros. & Co. a chattel mortgage for \$4,193. The mortgage is given by Alex. Munro & Co.

**CHEMICALS AND DYESTUFFS.**

Castor oil is higher, owing to the scarcity of seed. Sulphate of copper is also dearer on account of higher value of copper. Sumac is weaker, and other lines are unchanged. Business is dull and there is very little to report. The following are current quotations in Montreal:

Bleaching powder	.....\$ 2 00	to \$ 2 10
Bicarb soda	..... 2 35	" 2 50
Sal soda	..... 0 75	" 0 85

Carbolic acid, 1 lb bottles	..... \$0 27	to \$0 30
Caustic soda, 60°	..... 1 80	" 1 90
Caustic soda, 70°	..... 2 25	" 2 35
Chlorate of potash	..... 0 13	" 0 18
Alum	..... 1 35	" 1 50
Coppers	..... 0 70	" 0 75
Sulphur flour	..... 1 75	" 2 00
Sulphur roll	..... 1 75	" 2 00
Sulphate of copper	..... 6 00	" 7 00
White sugar of lead	..... 0 07	" 0 08
Bich potash	..... 0 10	" 0 11
Sumac, Sicily, per ton	..... 55 00	" 60 00
Soda ash, 48° to 58°	..... 1 25	" 1 50
Chip logwood	..... 2 00	" 2 10
Castor oil	..... 0 10	" 0 11
Cocoon oil	..... 0 06½	" 0 07

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**Chemicals and Dyestuffs**

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**Fast Colors for Wool** Such as DRY ALIZARINE, ALIZARINE BLUE, GREEN, YELLOW, etc.

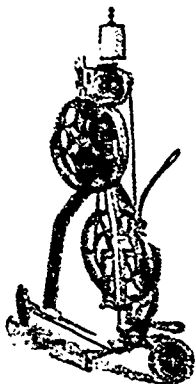
Also CAUSTIC POTASH FOR WOOL SCOURING

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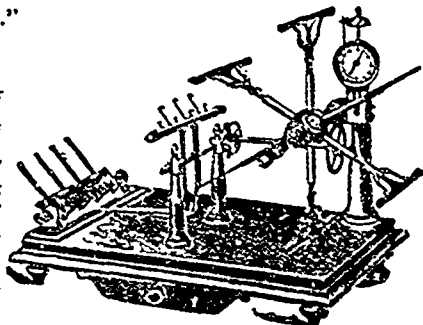
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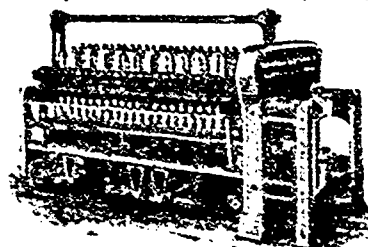
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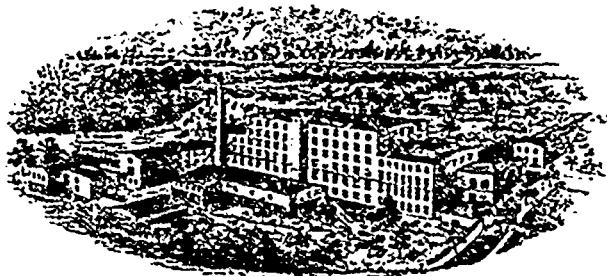
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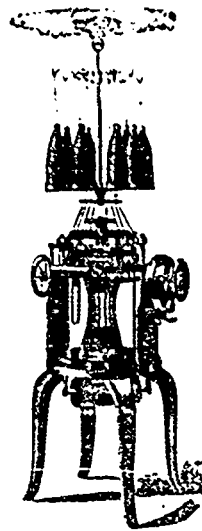
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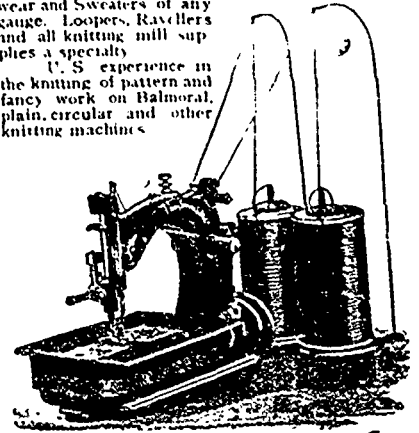
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Machines for knitting ladies  
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U. S. experience in  
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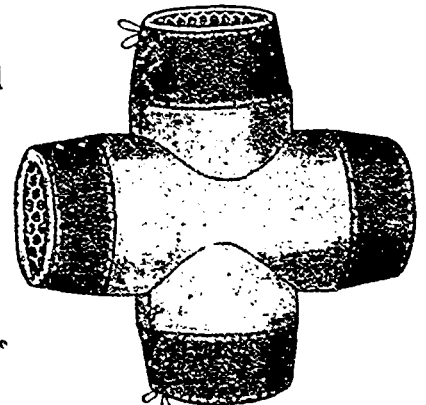


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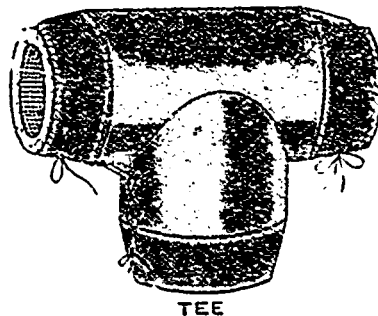


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**TEXTILE IMPORTS FROM GREAT BRITAIN.**

The following are the values in sterling money of the textile imports from Great Britain during January, 1896, and January, 1897 —

	Month of January,	
	1896.	1897.
Wool .....	£ 1,066	£ 2,039
Cotton piece goods .....	75,853	59,346
Jute piece-goods .....	13,540	10,314
Linen piece-goods .....	28,443	16,940
Silk, lace .....	2,116	176
" articles partly of .....	4,582	1,462
Woolen fabrics .....	22,244	21,018
Worsted fabrics .....	58,548	61,805
Carpets .....	20,016	14,420
Apparel and slops .....	35,462	23,655
Haberdashery .....	20,412	13,781

E. P. Hammond, of St John, N B, has entered the employ of M Vineberg & Co., Montreal, as traveller

T. S. Hobbs, London, Ont., has contracted for 1,000 tons of binder twine from the Kingston penitentiary at about \$130,000

**MOVING TIME!!** Our subscribers are reminded to notify us of any change in address necessary. Give both old and new addresses.  
**THE PUBLISHERS.**

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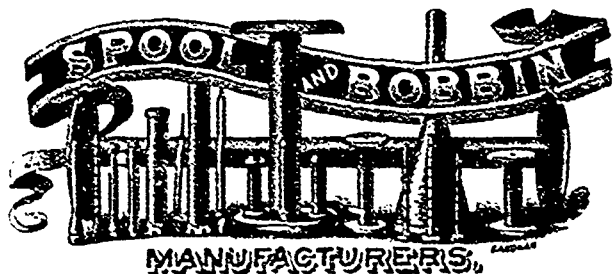
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**Walkerton, Ont.**

## THE WOOL MARKET.

TORONTO.—The market is very quiet, most of the available wool having been sold on United States account. One Toronto wool merchant has sent half a million pounds across the line this season. We quote: Fleece combing, 22c.; clothing, 20c.; tub washed, 20c.; rejection, 17 to 18c.; pulled super, 20 to 21c., extra, 21 to 22c.

MONTREAL.—There is almost nothing doing in this market; manufacturers say they are getting orders very sparingly, and principally for cheap fabrics, in which very little wool is required. Shoddy and cotton are in more demand. In this connection a prominent dealer says he wishes the Government would put on 50 per cent on rags; it would be a blessing for this country. There is no change in prices to report; greasy Capes 14 to 16c., snow-white, 33 to 34c.; B.A washed, 26 to 33c.

T. Lindsay & Co., Ottawa, Ont., have established in that city a clothing factory. It will employ 128 hands and 28 sewing machines.

The old wholesale dry goods firm of Burns & Murray, Halifax, has ceased to exist. Thomas Little and John Kline, employed with the firm, have entered into partnership, and will carry on the jobbing and retail dry goods business.

## FABRIC ITEMS.

A statement of the affairs of Pr evost & Company, dry goods Kingston, Ont., who assigned some time ago, has been issued. The liabilities amount to \$13,212 75, with assets of \$8,390 97, leaving a deficit of \$4,821 68. Some of the creditors are as follows: Caldecott, Burton & Spence, \$1,004.79; Alexander & Anderson, \$885.41; A. Bradshaw & Son, \$322 24; J. D. Ivey & Co., \$116; D. McCall & Co., \$240.07

Judgment has been handed out by Judge Ketchum, Cobourg, Ont., in the celebrated sheep case of McBride v Bleazard, the verdict being for the plaintiff for \$7 50 and costs. His Honor found that the sheep, which Bleazard took in and claimed as his really belonged to McBride. The sworn evidence of one witness that the sheep "noddod" to McBride, as indicating old acquaintance, is therefore probably correct.

The stock and premises of W A Murray, Ltd., King street, Toronto, were badly damaged by fire on Feb 27th. The amount paid the firm by the insurance companies was about \$95,000. The stock carried by R. Walker & Sons, which was, we believe, inventoried at about \$168,000, has been sold to W A. Murray, Ltd., and is now on sale, the combined fire and clearing sale causing quite a ripple in shopping circles in Toronto.

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Have you a Cotton Mill, Woolen Mill, Knitting Factory, Carpet Factory, Carding Mill, Silk Mill, Flax Mill, Jute Factory, Felt Factory, Rubber Factory, Cordage Factory, Asbestos Factory, Paper Mill, or Wall Paper Factory?

Are you a Manufacturer of Clothing, Men's Furnishings, Ladies' Wear, Buttons, Feathers, Upholstery Goods, Sails, Tents, Awnings or Window Shades?

Are you a Manufacturer of Hats or Furs?

Are you a Manufacturers' Agent or Commission Merchant in any of the above lines?

Are you a Wholesale or Retail dealer in Dry Goods, Clothing, Men's Furnishings, Hats and Furs, Millinery and Ladies' Wear, or Upholstery Goods?

Do you want to refer to details of the Tariff on Textiles, or to statistics of all branches of these trades and their relations with other countries?

**If so, you need this Book and you ought to be in it.**

## SOME QUESTIONS

THE first edition of the **Canadian Textile Directory** was published in 1885, and made a work of 318 pages. It has since grown till it has made a volume of 486 pages, and the coming edition will probably be larger still. Some new features will now be added, and every pains will be taken to make it comprehensive and correct.

Taking it all round, there is no work published containing the amount and variety of information on the textile and allied trades that will be found in the **Canadian Textile Directory**; and the number of copies ordered from abroad for purposes of reference is continually increasing, the last edition having been exhausted some time since by such calls.

The advertisers who patronize it, are, as a rule, the very best in the trade, and the number of the firms represented in its advertising pages has increased with every issue.

If you have not reported your name and address, please do so. For forms and particulars, address,

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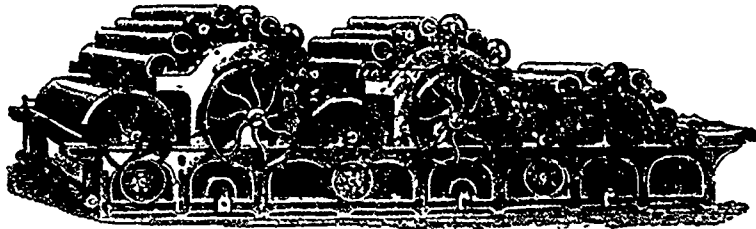
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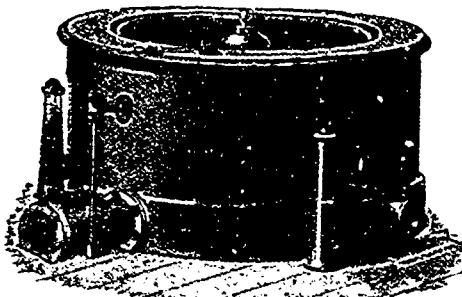
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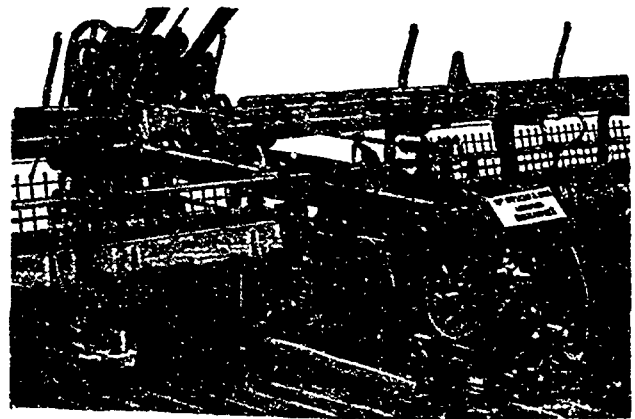
THE issue of the *Oil, Paint and Drug Reporter* for March 8th 1897, although supplemental to the regular number of corresponding date, is intended as a special, commemorative of the twenty-fifth birthday of the paper. While this anniversary occurred in October last, the completion of the fiftieth volume in December, 1896, was deemed the fitting occasion to celebrate, and the publication of this special anniversary number was projected to follow as closely upon the last issue for 1896 as the compilation of statistical matter for that year would permit. Much interesting matter characterizes the issue.

THE dry goods stock of R. W. Mutchmor, of Galt, which was sold to his brother, E. F. Mutchmor, about a year ago, is offered for sale by the creditors. R. W. Mutchmor sold his stock, valued at \$35,000, to his brother, E. F. Mutchmor, the latter paying \$17,000 cash, and giving his notes for the balance. The cash was distributed among the creditors, but the brother has failed to meet the payments as they fall due, so the stock is to be sold.

THE wool schedule in the new McKinley tariff is divided into three classes. Class 1, including all wools of merino blood, immediate or remote, and others imported from Buenos Ayres, New Zealand, Australia, Cape of Good Hope, Great Britain, Canada, Egypt, Morocco and elsewhere. Class 2—Leicester, Cotswold, Lincolnshire, down combing wools, Canada long wools, or other like combing wools of English blood, and hair of camel, Angora goat, alpaca and other like animals. Class 3—Donskoi, native South American, Cordova, Valparaiso, native Symrna, Russian camel's hair and wools heretofore imported from Turkey, Greece, Syria and elsewhere. In the wool schedule wool of the first-class is taxed 11 cents per pound; Canada long wools, 12 cents per pound; wools of the first-class, imported washed, shall pay double duty; and wools of the first and second classes, imported scoured, treble duty.

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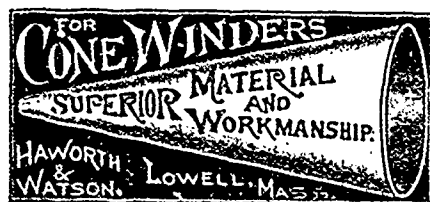
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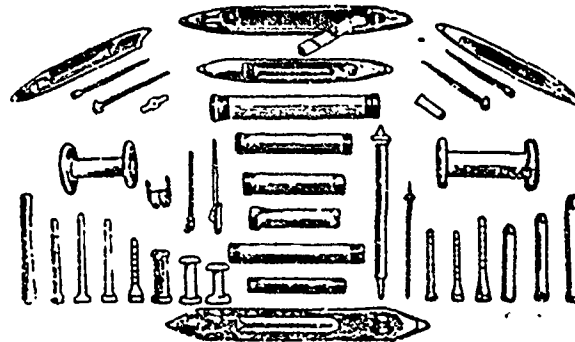
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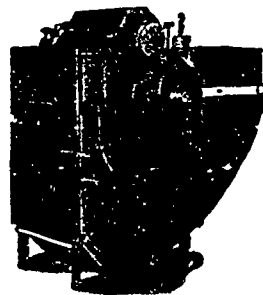


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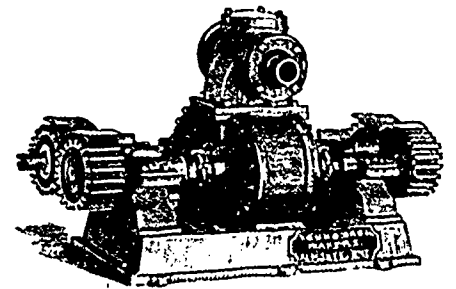
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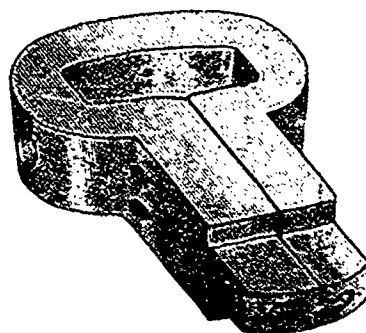
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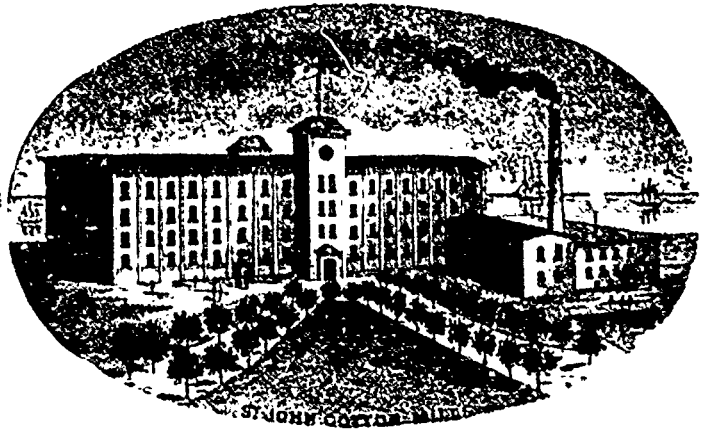
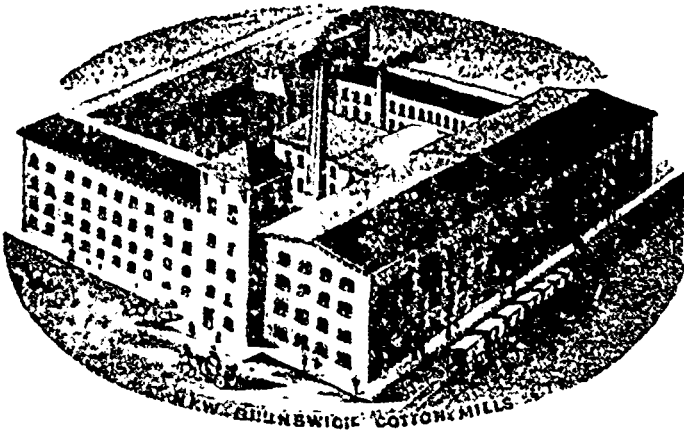


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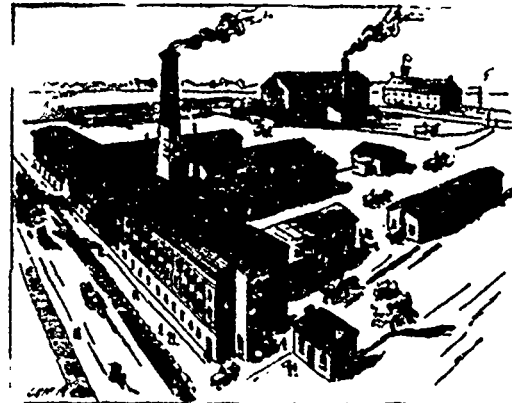
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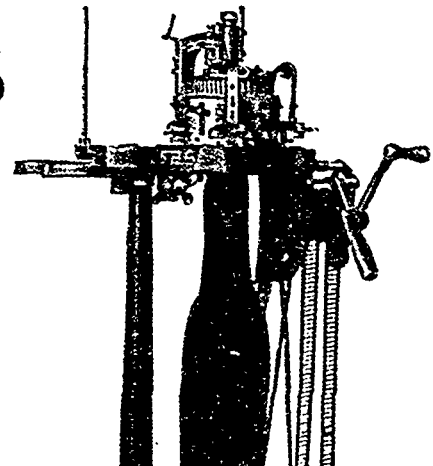
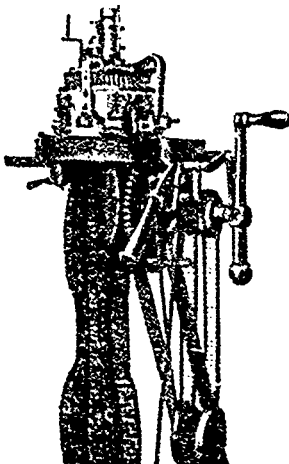
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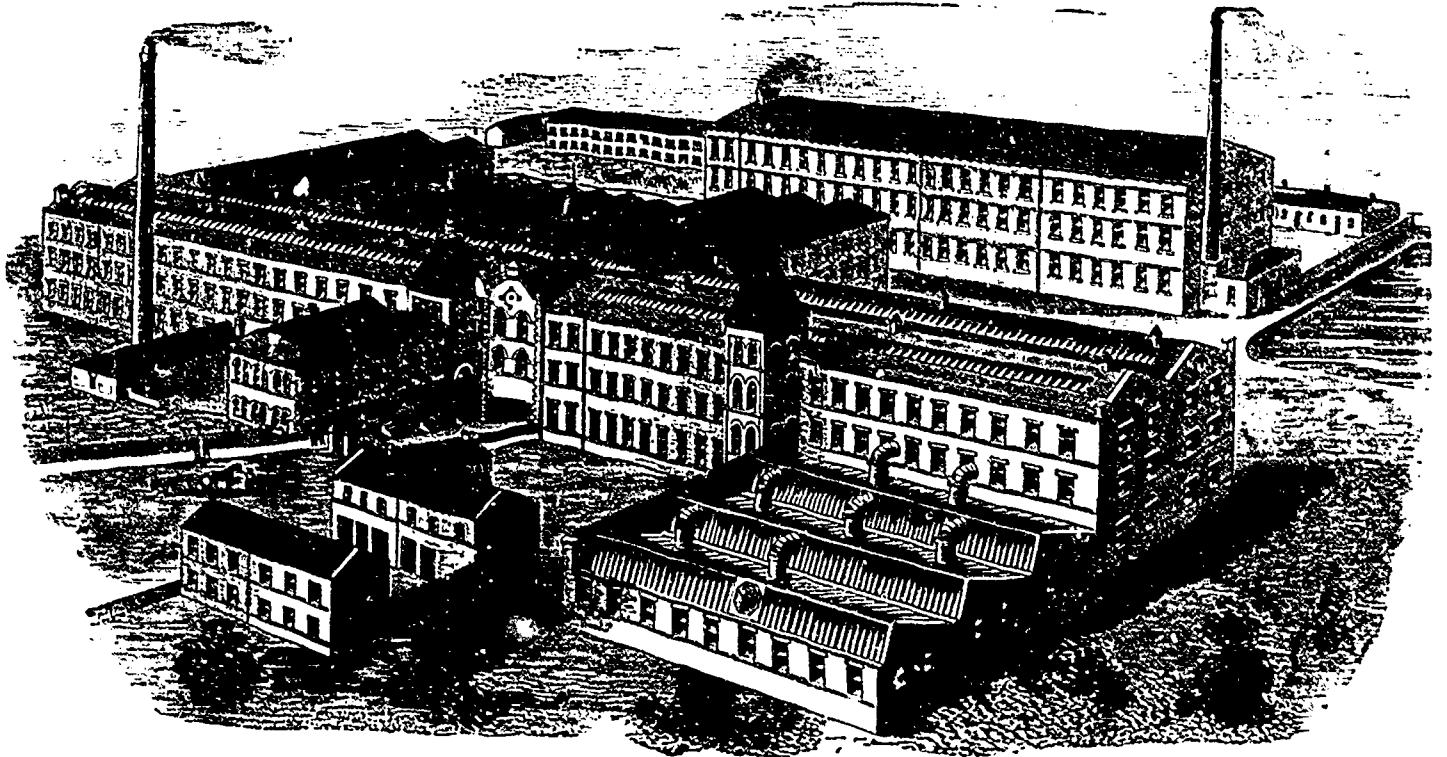
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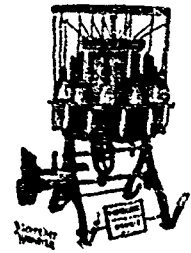
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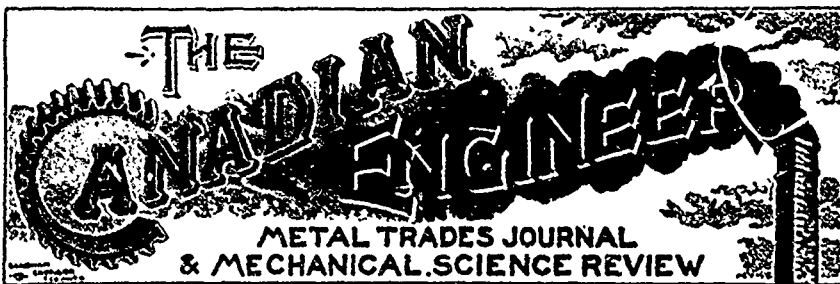


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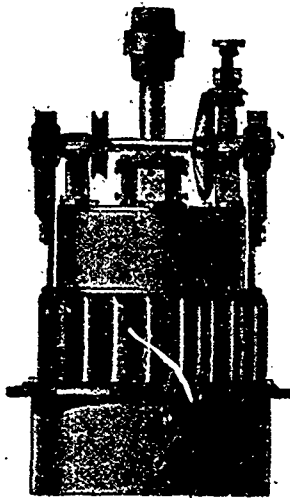
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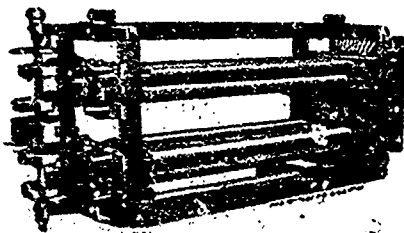
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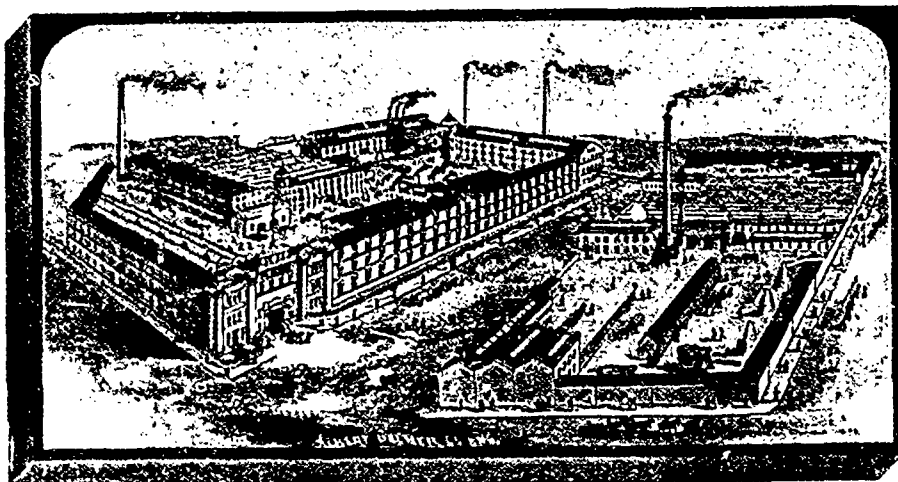
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