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CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIII.

TORONTO, APRIL, 1896

No. 4

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CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE
Textile Trades of Canada.

Vol. XIII.

TORONTO, APRIL, 1896

No. 4.

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, 5s. Advertising rates on application.
Offices: 62 Church Street, Toronto, and the Fraser Building, St. Sacramento Street, Montreal.

E. B. BIGGAR { BIGGAR, SAMUEL & CO. } R. E. SAMUEL
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Editorial

Dress Reform in the Mill.

The idea of dress reform in the factory has hitherto received very little attention. It is usually considered that a suit of clothes or a dress which has become worn is good enough to work in. Even where the women get simple print dresses, as most Canadian women do, which are cheap, serviceable, and easily cleaned, yet they are lacking in this point, that they are not the best possible dress for the purpose either as

regards liability to fire, or to catching in the machinery. Now why should not the worker in the textile trade have a special costume, as he would if employed in the metal trades? Different sports and pastimes have evolved suitable costumes, and there is no reason why the same search after comfort and convenience should not be made by those who work, as well as those who play. Divided skirts and bloomers are no longer a subject of joke, but are accepted on all hands as a quite proper adaptation of the conventional dress to a new need. Frequently grave and fatal accidents occur among the women in factories through the entanglement of their skirts in the machinery, and a number of horrible accidents have occurred through the inflammable nature of these garments. Something of interest in connection with this subject is the fact that the fire-proofing of fabrics is now quite generally practised in Germany, and a manufacturing clothier of Dusseldorf has recently perfected a working dress which is light, cheap, durable, fire proof, and washes easily without loss of color. It is of strong blue canvas, which is so thoroughly fire proof, it is said, that it will stand several minutes exposure to a powerful gas flame with no greater damage than the singeing of the nap. The general adoption of some special costume would save a considerable outlay on the part of the workers, and would tend greatly to preserve health and life.

More.

To announce the discovery of extravagance or fraud in connection with a Canadian Government, Provincial or Dominion, is not to attract much attention, at least not much attention of the believing sort. The cry of "wolf, wolf" has been heard before, and but too many of our best citizens have found that this particular wolf at least is a very decent fellow, even when he does get among the flock. The sheep nearest the intruder have been on many occasions known to make a very comfortable meal on the pickings of their esteemed relative. So on the whole we affirm, with all other supporters of the Government—we mean all governments of whatever stripe or status—that in the first place there is no such a thing as a wolf, and in the second place, if you really know that most charming person, the wolf, won't you kindly introduce us? The letting of the Dominion Government supply advertising is a matter on which much light might be shed by a little explanation from some one who knows. Of course it is let on the principle of

the greatest good to the greatest number. Everything always is. Only we would like to know who comprises the greatest number. Is it the people of Canada, the party in power, or the subsidized press? The average man who looks into the matter will be of the opinion that an advertisement for supplies which reaches every possible tenderer is of more value than one which reaches a number, possibly a large number of tenderers, and ten thousand other people who take no interest in the matter. If the two advertising mediums were of equal price, it would not take the average man long to decide in favor of the one which reached the largest number of interested readers. When, however, the prices are such that every one of the useless subscribers must be paid for, and the cost of advertising in the more widely circulated and less valuable medium stands easily at twenty times that of the other medium, the average man is quite at a discount, for an enlightened and paternal government always chooses the more expensive. Indeed so much greater is their sagacity and keener their insight, that they perceive dangers in cheap and effective advertising which are unthought of by the average intelligence, and our legislators in the Dominion Government, at least, have decreed that at no time, and under no circumstances, is the cheap and effective medium to be employed. In a word, the Dominion Government, by an Order-in-Council, forbids the inserting of supply advertisements in any publication which appears more seldom than once a week. On this account, such advertisements as that for military clothing, for example, appear in, perhaps, one hundred different papers at a cost of not less than \$1,000, and do not reach as many of those in the trades interested as a \$50 space in a trade's paper would do.

The Imperial Zollverein. The voice of the tariff-mender is loud in the land, and though he does not go about from door to door ringing a cracked brass bell to call attention to his stock in trade, we none of us can escape him. Whether it is morning prayers, or morning papers, protection is still the theme. We are growing, however, and as growth always implies laying aside old material and taking up and employing new, old ideas must be cast aside. The English Colonial Secretary, who is an ardent believer in the future of the Imperial idea, moving towards the formation of an Imperial zollverein, into whose strong box the wealth of the nations of the earth would be gathered, and whose armies and navies would control the politics of the world. This mighty structure is to rest upon a foundation of tariff bricks, and so the brands and qualities of various such tariff bricks are now under discussion. A suggestion for intercolonial tariff comes from the East Indies. In view of the fact that the Indian cotton duties (essential though they are to the Indian revenue) are a serious handicap to the English manufacturers, it is suggested that a duty be levied upon all goods imported into England, when such goods are partially produced in India; these duties to be returned to the Indian Treasury to the amount levied upon the Indian pro-

duce, and retained in the English Treasury where the goods are produced by a foreign country. The extension of this principle to the entire commerce of the British Empire would be an operation so colossal as to be perhaps beyond the range of possibility, but the probable results of its introduction are worthy of some discussion before the idea is laid aside as a brick not worthy of place in the foundation of Chamberlain's Greater Britain.

Woolens from Japan. We have seen what Japan can do in cotton and silk manufacture, and the talk recently gotten up in the United States over \$12 bicycles from the land of cheap labor and paper window panes, shows what may be done by the imitative Jap. Now manufacturers of woolens will join in the excitement, for the Japanese Government has decided on free wool as an encouragement to the native manufacturers, and we may expect to see oriental tweeds and worsteds all over the world before the next five years are past.

FOR THE CANADIAN JOURNAL OF FABRICS.

PRESENT CONDITIONS IN THE WOOLEN INDUSTRY.

BY "WOOLEN MANUFACTURER."

It is asserted by the opponents of the National Policy that this measure of protection has degenerated and debilitated our industries. As to the wisdom or otherwise of protection, we do not intend to enter into any argument, but rather to notice causes which naturally arise in the course of years of prosperity and bring about severe economic changes, whether it is under protection or free trade principles.

Particularly in newly-established countries, surrounding circumstances and customs oftener bring about changes that affect trade and commerce materially. Better technical education thirty years ago of the people in France and Germany affected all industries in England, though England then was in full swing of her free trade principles. The Education Act of the Gladstone Government was the outcome of this apparent defeat of the English artizan, and the necessity for more than elementary education for the masses. During the past twenty-eight years every city and town which are the centres of the various branches of industries throughout England, have established schools and colleges for the technical education of the artizans.

The extraordinary success of the free trade policy of Cobden and Bright, adopted fifty years ago, made England the centre of the commerce of the world. Every European country felt its influence and partially adopted free trade. Twenty-five years ago these European nationalities began to adopt the protective policy, and also further developed their educational institutions and gave a higher technical knowledge to the masses, and so brought about the defeat of the British workman in a great many branches of industry.

The same economic conditions exist to-day in Canada and the United States. The want of higher technical education for our working men is very evident.

The woolen industries of Canada are suffering now from this cause to a great extent, though there is another cause of great importance, the need of improvement in machinery as well as methods and variety of styles in our manufactures. The period of depression which has affected all the world has been very prolonged. The displacement of population is gradually rectifying and re-balancing nations and communities. The millions of every European nationality that have left their native homes and settled in North America have had a great re-balancing effect. We who expatriated ourselves to this our adopted country, have assisted in this great economic change. Are we getting a living and bringing up our children on the lines to further aid and develop the resources of this country? Let every one answer that question. Are our legislators doing it by their wearisome labors, playing at statesmen for their sessional pay?—this applies to Dominion as well as Provincial legislators. What a great economic change it would be if we could only reduce our Provincial legislators to at least one-third in number, and elect representatives free, able, and willing to legislate for us without pay. Our public representatives are very often—ah! too often—pauperized by the sessional pay attached to the office. Fancy asks me, What have these ideas to do with the woolen industry?

Well, I may be a little off the subject, but not much; though, if we are over-governed and burdened with such heavy expenses, it is expecting too much for the country to recover from its depression if the expenses are not reduced also. A person who suffers a reverse in his circumstances is compelled to reduce his expenses if he means to recover at all. So must a government of a nation. Are we doing it in Canada? So, enough on our economic conditions; but what has that to do with the woolen industries? It is just this: the same rule applies to every industry in the Dominion. Expenses must be reduced, working men better educated, machinery improved, and old and worthless machinery cast aside. How far this has been done, and what relation the facts suggested bear to present conditions of the woolen industry in Canada, will be shown in subsequent articles.

LONDON WOOL SALES.

The second series of London sales of colonial wool, which commenced on the 3rd March, closed on the 20th, the following quantities having been catalogued:—

		In the corresponding series last year.
Sydney	46,054 bales,	against 66,210 bales.
Queensland	38,448 "	" 35,968 "
Port Philip	25,967 "	" 56,339 "
Adelaide	10,067 "	" 25,337 "
Tasmania	74 "	" 736 "
Western Australia	5,402 "	" 3,619 "
New Zealand	52,248 "	" 54,166 "
Cape	16,839 "	" 24,349 "

Total..... 195,099 bales, against 266,724 bales.

The net total available amounted to 207,000 bales. Of these 189,000 bales have been sold; 79,000 bales

for British consumption, 108,000 bales to the continent of Europe, and 2,000 bales to America, leaving 18,000 bales to be carried forward to the next series. The series opened with spirited competition and a rise of about 5 per cent. on Australian merino wools. As the sales proceeded the tone grew stronger and the advance gradually increased to 10 per cent. The only and small exceptions were the super Western and the best Adelaide wools, which owing to the absence of American demand did not improve their position. But all other greasy wools participated in the rise, most of all medium to good descriptions, and broken, and pieces, which mostly sold 1d. dearer than in January. The ground gained by the scoured wools was equally conspicuous, prices from all classes ranging from 1d. to 1½d. above previous quotations. Crossbred wools did not advance at the outset, but during the latter part of the series they became more difficult to buy and may now be quoted 5 per cent. dearer, especially the medium and coarser classes. Capes rose 5 per cent. on the opening day; for snow whites this gain was fully maintained, for greasy it was increased 5 to 10 per cent. The former may be quoted ½d. to 1d. higher than in January, the latter ¾d. to ¾d. higher for short, and ¾d. to ¾d. per lb. for long wools. The sales throughout have been largely attended. The German industry took a leading part in the purchases, but England and France also took their fair share, and only America remained inactive.

During the last few days the extreme prices paid in the middle of the series for Australian merino wools and Cape greasy were not quite maintained, but the tone in the sale room remained strong to the close.

The following shows the supplies and deliveries of colonial wool as compared with last year:

	1896.	1895.
Held over from December....	20,000 bales	63,000 bales.
New imports for the first two series	371,000 "	414,000 "
	391,000	477,000
Home consumption	158,000 bales.	194,000 bales.
Export	215,000 "	263,000 "
Total sold	373,000	457,000
Held over	18,000 bales.	20,000 bales.

It will be seen that the total sold in the two series falls short of last year's figures by no less than 84,000 bales. This deficit, to which every succeeding series is likely to add its quota, is not perhaps felt at present, as the direct colonial purchases have this year been shipped much earlier, and the aggregate deliveries to the trade are much the same as at the same period in 1895, but the decrease must become prominent as the year advances.

The next three series have been fixed to commence on the 28th April, with a limit of 325,000 bales on the gross arrivals; on the 30th June, with a limit of 375,000, and on the 22nd September, without limitation. After the deduction of the transit wools, but including the old stock, a net total of about 270,000 to 28,000

bales will probably be available for next series. Last year 350,000 were available in May, but only 282,000 were sold.

NO PROFITS NO SALES.

That competition was the life of trade, was a fixed belief in the minds of all right thinking business men some time ago. Indeed, anyone who would countenance anything tending toward the restriction of free competition was looked upon as an enemy of the British Constitution and but little better than an infidel. The laws of the land became permeated with the idea, and an act "unduly in restraint of trade" is an indictable offence under the common law. But competition has had its day, and now many of the cleverest thinkers are engaged in working out plans for the annihilation, or at least, restriction of that very principle; labor endeavors to get its best returns through unions, and capital works in the same direction by means of combines. Indeed, our old friend competition is said by many to be but very little better than another name for the labor question.

Much of what is designated competition by the manufacturers and traders indulging in it, might be quite as aptly styled fraud. Underselling is almost as distinctly fraudulent as any other form of commercial dishonesty. The underseller may be merely reckless, or intentionally dishonest; the result in either case is the same. Profits are not made, and in the end the smash is inevitable. In the meantime, the trade to which he belongs has been seriously hampered by the unfair reduction in the prices he has made. Wares of inferior qualities are produced; and the wage-earners suffer.

In many cases the underseller errs through ignorance of the proper price, and may carry on business for years before discovering that he is hopelessly insolvent; being blinded to the true state of affairs by the large amount of business which is passing through his hands, and ignoring the fact that the advance on cost price at which he is selling does not meet the fixed charges of the business. On the other hand, the underseller who lays aside certain portions of his capital, which he perhaps thinks of in his mind as a war reserve, and spends it in price cutting just as an honest man may spend in advertising or wages, is guilty of an act which it is hard to distinguish from the course of the man who hires some one to burn down the factories and warehouses of troublesome competitors. The chief difference is, of course, that in the latter case there are penalties if he is caught.

The wise control and direction of a business must, of course, be left largely to those in charge; outside interference is in many cases dangerous. An English writer proposes something new in combines, by which underselling is to be prevented by the establishment of a fair price, below which no sales are to be made, and which is to be enforced by the combination of the employees. Of course, the fixing of the bottom price

is no novelty, but the provision of means by which that price may be maintained and the penalties of its violations exacted is new. The manufacturer who knows if he accepts an order at an unprofitable rate he will cause an immediate strike in his works, will be apt to think twice before accepting such an order. Though the scheme may possibly be impracticable, yet its discussion will not be without benefit. R.

MANUFACTURING WASTE.

Just at what point the introduction of substances into stock which are other than the name of the goods to be woven from it implies, ceases to be legitimate economy, and where the line is drawn beyond which further admixture is fraudulent, may perhaps be difficult to determine. For the most part, and speaking generally, there are no such legitimate economies, though substitution is universally practised under that name, and everything which is not pure stock may be said to be fraudulent. Recently a bill was introduced into the Ohio State Legislature, which if carried would compel the labelling of all textiles with a statement of each ingredient in the composition of the fabric. There is much to be said in favor of such legislation, not only from the consumer's, but from the manufacturer's, point of view. The man who makes pure goods can get a fair price for them, other things being equal, if adulterated goods are not brought into competition. Every manufacturer can make pure goods and is anxious to do so if it were profitable.

It must not be supposed, however, that the exclusion of waste from use as stock is advocated. It would always have its place as an aid in the production of cheap goods and would also find a place for itself in other ways, as the manufacturing industry is too thrifty to allow the loss and so large an amount of material as the waste of the different processes produces.

As an example of what economy and industry can produce from even the most unpromising materials, a new French fabric is an example. It is "Renaissance," the name technically given to the lint from cotton and woolen rags. To this are added hair from the establishments where calf and kid skins are "tawed" or dressed for white leather to be used in glove making, the refuse of silk, the sweepings of spinning and weaving mills, and the loose threads from trimming rooms; and, finally, all that dust of silk, cotton, linen, hemp and jute which gathers where these materials are in use. All these different products are skillfully mixed, in proportions according to need, with raw cotton and wool. The whole is then carded and spun, and woven with cotton wool. It is made into coverlets, travelers' rugs, counterpanes, printed or dyed "swanskin" flannels, curtains and portieres, table spreads and furniture covering. Much taste and skill are applied to the dyeing and dressing of this strange mixture; and there can be no doubt of its success so far as the eye is concerned. As no one can reasonably expect merino goods at the price at which renaissance coverlets are sold, the business success of the manufacture is also assured.

The renaissance industry is due to the ingenuity of a manufacturer of Cours, where it has its principal seat. At the time of the war of 1870, this little town had a population of scarcely 3,500 inhabitants, all dependent on the hand weaving of cotton goods for the neighboring manufacturing centre of Thizy. The proprietor in question began with a factory of cotton and mixed cotton and wool coverlets. Other houses sprang up and the market was soon overdone. Besides, it was useless to try to compete with the all-wool products for which Lyons and Orleans had long been noted. Thizy was already manufacturing rugs and coverlets from the downy waste of silk spinning and weaving. They bear the richest colors and are sold at Paris as Arab stuffs. They have an assured market in England, India and the United States. The renaissance product was the result of the combined efforts of the Cours manufacturers to do something similar with all kinds of cheaper waste. They had so far been imitating wool with cotton. They now succeeded in imitating cotton itself with this indescribable mixture, gathered from the most diverse establishments far and near. In Holland, in the Argentine Republic and in Portugal, the "article de Roanne" is equally known. Thizy makes the loin cloths of the Soudan, and cotton full of roughnesses and knots to imitate woolen for the wild tribes of Morocco.

THE IMPORTERS OF FIFTEEN YEARS AGO.

Attention is called to the changes in the wholesale dry goods trade, which have come about during the last fifteen years, in a recent issue of the *Monetary Times*. A list of the firms well known to the trade in Montreal and Toronto, and other centres, at that time, is given as follows:—

MONTREAL.

Gault, Brothers & Co.	D. McIntyre & Co.
Mackay Brothers.	Henry Morgan & Co.
S. Greenshields, Son & Co.	James Donnelly & Son.
Hodgson, Sumner & Co.	Mills & Hutchison.
Thibaudeau Bros. & Co.	Sutherland, Lindsay & Co.
J. G. Mackenzie & Co.	McLachlan Bros.
Robertson, Linton & Co.	A. M. Foster & Co.
Skelton Brothers.	J. Y. Gilmour & Co.
James Johnston & Co.	James O'Brien & Co.
Stirling, McCall & Co.	Carsley & Co.
Kyle, Cheeseboro & Co.	

TORONTO.

John Macdonald & Co.	Forbes, Roberts & Co.
A. R. McMaster & Brother.	W. J. McMaster & Co.
Gordon, Mackay & Co.	Bryce, McMurrich & Co.
White, Joselin & Co.	Simpson, Robertson & Simpson.
Caldecott, Burton & Co.	Samson, Kennedy & Gemmel.
G. B. Smith & Co.	Jennings & Hamilton.
W. R. Brock & Co.	Boyd Brothers.
Wyld, Grasett & Darling.	Tait, Burch & Co.
Ogilvie, Alexander & Anderson.	John Ryan & Co.
Peter Ryan.	Oliver Wilby & Co.
Alex. Ross.	Thos. Walls & Co.
Fisher & Fisher.	Hughes Brothers.
Gale Robertson & Co.	

HAMILTON.

A. Duncan & Co.	W. E. Sanford & Co.
John Calder & Co.	Hyslop, Caulfield & Co.

QUEBEC.

Thibaudeau Bros. & Co.	Wm. McClymont & Co.
McCall, Shehyn & Co.	Joseph Amyot.
P. Garneau & Freres.	Leger, Rinfret & Co.
Hamel & Freres.	

OTTAWA.

Russell, Forbes & Co.	Seybold & Gibson
John M. Garland.	

KINGSTON.

McNee & Minnes.

LONDON.

Robinson, Little & Co.	John Birrell & Co.
John Green & Co.	J. B. Laing.
A. E. Pavey & Co.	Watson & Young.

Of these sixty-eight houses some twenty odd are still in business. Changed conditions of trade are perhaps responsible for this; lessened profits and increased expenses; too many retailers and consequent retail failures and bad debts. And there is the further consideration that Scottish and English export houses have their agents scouring this country selling direct to the best retail marks, and cutting into the business of the Canadian middleman. Then still more recently, there are the departmental stores which use up an enormous aggregate of merchandise, and whose proprietors buy where they please, in this country or any other, often going past the regular wholesale importer. The wonder naturally felt by any one who contrasts the smaller number of wholesale importers existing to-day with the larger list of former years, may be in some degree removed by remembering the large volume of trade of individual houses of to-day, which used to be scattered over several smaller ones in former years. Still, there seems no room to doubt that the efforts of the Glasgow and London houses, which sell to the Canadian retailer, and the direct imports of the departmental stores, interfere greatly with the legitimate function of the wholesale dry goods importer in Canada to-day, and it may be noted that there are houses in London, Leeds, Glasgow, Manchester and Bradford, who are selling dry goods to Canadian retailers. We are told of woolen houses who sell goods to custom tailors *in suit lengths*.

Many of these failures were caused by inadequacy of capital. Buying on long credit and selling on long credit hundreds of thousands a year, paying interest on discounts, spending money too freely in living expenses, allowing a margin—a broad margin—for bad debts—all this cannot be done on a capital of \$15,000 or \$20,000. Again, inadequate profits. As a trained observer puts it: "The importing house, newly begun, cuts prices in order to get the trade, thus establishing a false basis of price and an unremunerative business." It is also true that too many houses were dividing up the trade. They could not all survive.

It will not be amiss to remind the smaller retail dealer, who is newly enamored of being styled "direct importer," and who gives his order to an English agent with a certain swelling of the heart in consequence, that the plan has certain advantages. He ought to know that the handsome and voluble agent who sells him the goods on time is well paid, and that his travelling costs something; also that the expense of his salary and hotel bills is put upon the goods the importer buys. Secondly, there is always a temptation to overbuy. Then, too, it requires cash to pay duty upon imports.

Query—how much discount could he command if he went with this cash to a Montreal or Toronto wholesale house? From 12 to 18 per cent. per annum.

THE EMPLOYMENT OF DESIGNERS.

The division of labor is being extended in the textile trades, and it is no longer the very largest mills only which employ a designer whose duties are solely what the name implies. Not so very long ago a mill superintendent was not considered to be doing any more than his work if he also did the designing. There was, of course, this difference, however, that mills then made goods more or less for stock, and a mill of any size had usually a reputation for a certain line of goods upon which it ran from season to season with only slight changes in design, weight or color. The present system of doing business, however, in which the product of many mills is sold through commission agents, who to a certain extent decide upon the fabric and the price at which it can be sold in the coming season, renders a designer necessary.

When a mill manager is informed of the fabric desired and its price, he gives these data to the designer, and expects him to produce a cloth which will meet the requirements. For assistance in these matters, generally the selling agent submits numerous clips or sample swatches, that have been selected from time to time with care for this particular mill or line of work.

Only in the hands of an expert are these swatches of material value, as they present so wide a range of character that only by careful culling are those of worth to any one line selected. From these, the designer lays out his colors and adopts the several weave effects necessary to make a variety of style sufficient for an attractive showing. While the colors chosen are being gotten out either in worsted or woolen carded yarns, the designer has time to formulate his different weaves, arrange color-combinations and dressing effects. So when the yarns are ready, block sample work is immediately commenced. In this work, without care and judgment by the designer, trouble arises, as the various effects often require a different number of ends and picks, sizes of yarns, etc., and unless properly arranged, the samples are neither uniform in weight nor general character. Again, all samples of same line must be about one cost, as no selling agent likes two prices on one fabric or line of goods.

After making a sufficient number of block samples, they are submitted to the agent for a final selection of what is termed selling ends. To-day a comprehensive line of either worsted or woolen goods must consist of from 100 to 175 selling samples, covering the various designs of suitings and trouserings in a multiplicity of color combinations. To such an extent has this selling sample business grown, that to-day a mill of 100 looms on fancies must expect an expenditure annually of at least \$5,000 for this work alone.

As about 50 looms are considered a fair number on one line, and often a mill of that size makes two or

three, it is readily seen a designer's work is absolutely necessary, as no one man as manager can look after the details consistent with a proper organization, and attend to the above amount of designing.

For THE CANADIAN JOURNAL OF FABRICS.

WORSTED FROM THE FLEECE TO THE CLOTH.

BY B. F. FIELDS.

(Concluded.)

The first process towards finishing the goods is scouring. Scouring removes all the oil, dirt and foreign matter gathered up by the cloth during the manufacturing operation.

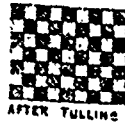
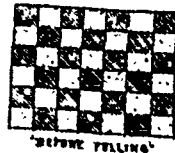
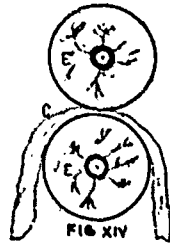
The cloth washer has several wooden rollers geared together, and the top ones are weighed down in such a manner that elliptic springs produce a pressure on the goods as they pass between. The pressure may be regulated to suit the requirements of the fabrics. The different pieces of goods are prevented from running together by a system of upright standards, through which they are drawn. An important feature of the new washers is that below the bottom roller there is a deep box, into which is squeezed all the dirt and grease that flows from the goods. In Fig. XIV. the two big washer rollers, *E, E*, are shown, through which the cloth *C* is made to run continuously, thus effecting the washing process. The latest machines are arranged to accommodate eight pieces at one time.

One of the principal difficulties with goods which are not properly scoured is that the defect is seldom discovered until too late. Sometimes a piece of goods will have the appearance of being perfectly clean, and it is shipped to the commission house before the discovery is made that the fabric has not been half washed. The fact will be known by an offensive smell, which is the result of the presence of grease which should have been removed in the washing machine. If the least trace of grease remains in the body of the cloth, it will manifest itself when the goods are opened after they have been rolled up a short time. Of course the only remedy for this trouble is a good, thorough washing of the fabric before it leaves the washer.

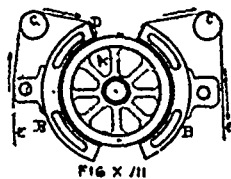
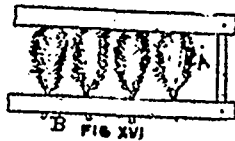
Worsted goods are not full or felted so much as woolen. The mechanical structure of the worsted fibre is of such a character that it is not adapted to full and felt. However, most worsteds are full to some extent. The five principal features of fulling are: *A*—A perceptible decrease in the width and length of the fabric. *B*—A decided increase in the density and thickness. *C*—A reduction in the size of the pattern. *D*—Increased durability and firmness. *E*—Development of a softer handle to the cloth. Fulling is accomplished by the use of a machine built somewhat after the plan of the cloth scourer. The pressure of the rollers upon the goods, the heat and moisture produce felting. In Fig. XV. is a sample of checked cloth before and after fulling. The change brought about by the fulling is plainly shown, the sample being reduced in size and thickness. The reason that the wool felts is that the

scales of the fibre interlock as shown, thus solidifying the texture.

Gigging is for the purpose of raising a nap on the face of the cloth. The process materially alters the general character of the fabric, there is practically no trace of a nap or pile on the surface of the goods when they are taken from the loom. A fibre characterized by its bare and thready appearance when on the loom, is by the agency of the gigging process completely



CAUSE OF FULLING
FIG XV



covered with a substantial coating of woolly fibres. There are many benefits derived from gigging fabrics. Without this the general state of all woven textiles would suffer, and the soft, lustrous feeling so distinguishable in soft-finished woollens would be dispensed with. Many imperfections are covered and obstructed from view by the teasels of the gig drawing the fibres over them. The gigging machine consists of a large skeleton cylinder, fitted with a series of iron rods or slats in which the teasels are firmly arranged in a uniform and symmetrical way. B (Fig. XVI.) represents the part technically termed a "slat," which consists of two flat strips of iron, three-fourths of an inch in width, and so arranged that just sufficient space exists between them for the introduction of the stems of the teasels A. There are two distinct methods of gigging, termed wet gigging and dry gigging. Both are used in worsted

manufacture. Next the goods are brushed and sheared, followed by pressing.

The advent of the steam rotary press into the textile world was an important circumstance. The old-style press papers were dispensed with; the cloth was effectually pressed without leaving an undesirable crease at edges of the papers, and the entire piece of goods was pressed into better shape than could be procured by the use of the screw press system. The principle of the rotary press will be understood from Fig. XVII. A is a large, hollow cylinder, into which steam is admitted while the cloth is going through the press; B, B are the bed plates which are mounted loosely on carriages, and which move upon horizontal slides fastened to the framework of the press. By means of set screws in the upper part of these carriages, the bed plates are prevented from tipping when moved back from the cylinder, from which they can recede six inches on each side; C, C are rollers arranged to guide the cloth during its passage into and out of the press; E represents the cloth undergoing pressure between the cylinder and bed plates. By noting the direction of the arrows, it will be readily seen where it enters, and where it leaves the press. The goods are then measured, rolled up, and are ready for market.

There are a number of different methods of finishing in use.

The distinguishing feature of the melton finish, which is sometimes referred to as a Scotch finish, is that the goods are not cleared out, neither is the nap to lie flat; but it is to resemble a piece of velvet. The goods are taken direct from drying to the shear, and the warp cut off. They are next pressed between cold plates and then gigged. An essential feature in the construction of goods intended for a melton finish is that soft or exceedingly slack-twisted yarns be employed.

The fundamental object in view when employing the velvet finish, is to imitate the appearance of velvet, which is characterized by an erect pile or nap on the upper surface of the fabric. In order to obtain this peculiar property, it is necessary to employ a wool which is noted for its felting and elastic properties. Then particular attention is given to the fulling process; in fact, goods intended for this style of finish are constructed with an open texture for the sole purpose of permitting excessive fulling and felting. Cloths finished by this process are scoured, fullled and dried in the usual way, and then gigged when moist.

All-wool cassimere fabrics are a popular class of goods. A close finish is usually required on this class of goods. The piece is scoured, fullled and dried as usual, and gigged with old teasels until the fibres are disentangled and arranged in parallel lines. A fine perforated pipe is used to sprinkle the goods with while they are in motion on the gig. After a short run under these circumstances, the piece is taken off and adjusted to a wet gig. Shearing and pressing follow.

It is well to know how to tell what the weave is of a certain piece of goods. Sometimes goods are labelled

and the weave is marked on it, but too often one has to guess at the weave. Secure a sharp-pointed tool and a piece of paper. Then loosen the threads at the top of the sample. If the first warp thread at the right is found to be beneath the first filling thread, then mark it on the paper as "down." That is, the warp thread is down. "Down" on the paper is represented by a cross (X). Now the next four-warp threads are found to be "up" over the filling thread. Mark these four-warp threads with four marks (////), because black represents the warp threads that are up. Next two-warp threads are down and are marked by two crosses. Next warp thread is up, and marked so. This is the end of the repeat. Then begin with the next filling thread, and do the same. Then take the next and so on. A good deal of trouble is experienced with samples made of soft spun yarn. Samples woven by the use of a complicated weave are hard to pick out. Of recent years the demand for fancy figured designing appears to have no limit. All the way from two to forty harness patterns are made in large numbers. The following suggestions are given: (1.) If the piece be woven by the use of an intricate pattern chain, it is a good plan to remove the "nap" by submitting it to a flame, or by the use of a sharp knife or razor. (2.) Much trouble is obviated by ascertaining which is the warp and which is the filling. *A*—If there are any "reed lines" in the goods, the direction of the warp can be easily known. *B*—A piece of listing on the sample shows the direction of the warp. *C*—The hard-twisted threads are the warp, and the soft-twisted the filling. *D*—If the pattern is striped, the stripes will run in the direction of the warp. *E*—Sometimes particles of sizing will be found adhering to the warp threads never to the filling.

Flocks are a soft, fiberless substance cast out from the different machines during the processes of manufacture. Fulling flocks are the most important, and are found in the fulling mill. If they are white, they have a high market value, being serviceable in combination with wool in several grades of woolen fabrics. Colored fulling mill flocks find their way into colored yarns, and are also adapted to certain classes of woven fabrics. Shear flocks are the superfluous nap or wool cut from the cloth in the process of shearing. They are sometimes used to increase the weight of goods while in the fulling mill.

Loom flyings are worn from the threads of the warp by its unceasing motion during the process of weaving. The constant rising and falling of the harnesses at the rate of 80 to 100 movements per minute causes a fine powder-like fiber to fall to the floor beneath the loom. Frequently it accumulates to the depth of one-half inch to an inch in a single day. Flyings from the loom are utilized by first passing them through the dusting process and adding them in small proportions to wool mixes.

Burr waste is obtained from the carding machines, and consists of the refuse material removed by the burr

cylinder. A long box adjusted to the frame of the card on a level with the burr cylinder receives all the lumps, burrs and substances too hard and bulky to pass into the carding machine, and which are knocked out by it. This refuse matter is periodically removed from the box and subjected to the dusting process, which removes all the dust and dirt. It is then in the form of a mass of curly locks and lumps of wool, which can be reduced to a fibrous condition by passing it through the steel-toothed cylinders of the garnett machine, and thus prepare it for final use in combination with pure wool.

THE HISTORY OF THE READY-MADE CLOTHING TRADE.

(Continued.)

The history of the sewing machine is one of the romances of the age. The "Song of the Shirt" was chanted over the hopeless slavery of the needle, welded by the fingers of tens of thousands of seamstresses, who dimmed their eyes by working seventeen and eighteen hours a day, living on tea and dry bread, and caring for their families, all to earn as much in a week as a good machine can earn now in a day. The same wail might even now be chanted over slum workers in the clothing trade, when one has had to witness the struggles of pauper foreign labor, the underlings of low-class sweaters, or the incompetent workers in delicate health or with unhealthy surroundings. But wherever the sewing machine has been set in motion, under the control of capital and skill, clothing factories, separated from the sweater and the speculator, vie with any other great factories in their sanitary, wholesome, and even pleasant surroundings, their moral influence, and their satisfactory pecuniary return to the employee.

But if the wails of the "Song of the Shirt" came from the garret, so, indeed, might it be said that the pizans of victory of the sewing machine came from the same stuffy quarter, for it was in a lonely garret at Cambridgeport, Massachusetts, United States, that Elias Howe, the inventor, constructed and finished the first automatic sewing machine that ever saw the light. This was in the year 1845. Previous to that date several attempts had been made to introduce a machine for the purpose of supplanting hand-labor, but none of them had been of any practical utility. The invention of John Duncan, for which letters patent were granted in England May 30th, 1804, was the first deserving of notice at all. This, however, was only a sewing machine in that it was an apparatus for loosely interlocking threads. It could not make a seam, and was intended only for ornamenting, tambouring, or embroidering, and even for that purpose had very little value.

In 1807, and again in 1821, James Withers took out English letters patent for what were termed "improvements in sewing machines." Both these patents were for stationary clamps, similar to saddlers' clamps, for the purpose of holding gloves for hand-sewing, but they bore no resemblance to Howe's invention. Amongst other patentees who followed might be mentioned the names of Henry Lye, of Philadelphia, in 1826, who invented a machine for sewing leather, but who did not leave any model of his contrivance; M. Thimonier, July 17th, 1830, who invented a machine for making tambour "stitches" by means of a crochet hook, and an instrument which was called an "acrocheur" in the patent. It was, however, defective because of its lack of power to fasten two pieces of material together; it had no feed motion; and its uses were extremely visionary.* A model of another machine was deposited by Alexander Temple in 1844, and John J. Greenough, on February 21st, 1842, and again on February 12th, 1846, but all shared a similar fate to their predecessors.

The only real competitor with Howe was undoubtedly our countryman, John Fisher, jr., of Nottingham. The primary idea of Fisher was set forth in the specification of the firm of Fisher & Gibbons, when they took out the patent, viz., that it was machinery for making ornamental figures or designs on lace, or

* This machine may be seen at the South Kensington Museum.

net, or other fabrics; but it does not appear that it was originally intended to sew cloth, or any similar fabric. Unquestionably, Fisher trod unconsciously in the footsteps of Howe (about whose proceedings, however, he at that time was ignorant) when he discovered the complication of threads known as the shuttle stitch. To him, therefore, must the palm be given as one of the greatest geniuses of the age, and when it is considered that he was only nineteen at the time he brought out his invention, his success may almost be pronounced unparalleled. But to Elias Howe must be given the pre-eminence as the practical originator, pioneer and champion of the complete automatic sewing machine, and that it may be classed as amongst the most important of all the inventions that have ever been evolved from human brains, is evidenced in several ways.

1st. In that whilst other machines, such as the spinning jenny, the self-acting mule, the Lewis machine, the power loom, the combing machine, etc., have only served certain departments of manufacturing—this has very largely transformed the whole social and work-a-day life of women, and it has done much to ameliorate their moral and physical condition also.

2nd. That the advantages of the machine have been felt in every branch of manufacturing, both in factories and under domestic control—where the use of the needle has been required.

3rd. Continuity of labor and increased dispatch in the execution of orders, have been marvellously facilitated.

4th. Older industries have been developed rather than retarded or annihilated, for no machine deals in the course of its operations with such an infinite variety of materials, and no machine gives employment to so large a number of persons in its manufacture.

5th. No machine has ever done so much to cheapen the cost of production, and therefore to reduce proportionately the cost of the manufactured article, and no machine has ever been produced to effect such marvellous results with so small a cost for the machine itself.

6th. No machine has so rapidly and universally been brought into use.

It will be needful, in order to prove the above assertions, to give in their due place some facts in connection with the history of the clothing trade, which may be of interest to many who are engaged in the general textile industries of the country, and which should, even still more, be of importance to all students of social economy. I may be excused, therefore, from spending the reader's time in eulogy, for apparently sinister motives, of an article of commerce now so universally in demand.

In these times of deep-seated prejudice against the sweating system, it may be useful to philanthropists to know that in the earlier days of the sewing machine, so much alive was one good minister in New York to the social advantages of the new invention, that he made it his duty to become specially acquainted with the distressed women and poor seamstresses of that city, in order to alleviate their condition. This he certainly succeeded in doing, by giving away machines in some cases; lending them in others; and hiring them out to others on a graduated system of payment. The benefit conferred soon became apparent, for not only were these poor women able, by their own labor, and that of their children, to obtain a good living, but (as was very common in those days) they took out their machines to work for other families. And, although it is now admitted on all hands that the factory system has many advantages over outside labor, yet to interfere with the employment of women in their own homes would be to crush out of existence a class of employees who could never leave the domestic circle for a factory, but who have, by the agency of the sewing machine, been enabled to keep the wolf from the door, and when male labor has been unemployed, often the wife or the daughters have been the only bread-winners.

Taking all the various industries in which the sewing machine is employed, wages have risen since its introduction from 50 to 100 per cent. beyond those received by hand-workers. So much, indeed, has this little agent improved the condition of woman, that in the United States they make the teaching of the sewing machine to bleeding

part of the routine of education, both for young ladies in the higher class seminaries, as well as for poor girls in the humbler schools. Then, again, whilst this means of employing women may have thinned the ranks of the domestic servants, it has unquestionably very largely raised them from the cruel and thankless drudgery of the good old days, for there is always now this alternative, when before there was nothing between a cruel mistress and a workhouse, except a life of shame.

When it is considered that not only are the mysteries of sewing, but of seaming, hemming, felling, basting, stitching, tacking, frilling, quilting, binding, cording, braiding, and even darning, done now by machine, it will be at once conceded that no other principle has been so fully applied to such a great variety of purposes. Then almost every branch of manufacture uses it. In England it was first employed in the manufacture of common stays and corsets. From the stay trade it found its way into the trades connected with the production of shirts, etc. For the clothing trade the earlier machines were of no value whatever, and were cast aside as useless. The firm of which George Holloway, M.P. for Mid-Gloucester, Eng., was the founder, was the first of any consequence who employed them successfully in sewing cloth. This was only done when Mr. Holloway had patented an improved tension, which patent was afterwards infringed, but which made them workable. Judkin's machines when first brought to England were £30 each. Before Mr. Holloway's patent was applied, he bought up a lot of these machines for 30s., as being of no comparative value. Having put the patent tension to them at a cost of one shilling each, he sold them again freely for £30 each. Mr. Holloway afterwards sold the exclusive right to use his patent in London to Cook, Son & Co., St. Paul's Churchyard.

The sewing machine was introduced into the boot trade at Northampton, Eng., in 1857. Although it met with organized opposition from the men, and its successful use was not accomplished till 1859, it has now revolutionized the whole of the boot and shoe industry. So much has this been the case, that the men themselves have been eager to get machines, and the more dangerous and unhealthy processes of the work have been done away with. In 1852 the wages of experienced female operatives were from 8s. to 10s. per week, and now machinists can earn from 14s. to 16s., slower hands 10s., best workers 20s. to 24s., and preparers 10s. Without further special notice, however, of other industries, we may remind our readers that the sewing machine is of invaluable importance in all the following trades in addition to those mentioned: the manufacture of ties, scarves, collars, cuffs, handkerchiefs, lace, silk goods, gloves, hosiery, blankets, rugs, carpets, saddlery, bonnets, hats and caps, mantles, millinery, waterproof goods, carriage furnishing, upholstery, &c., &c.

Perhaps in no respect has this invention been more useful both to employer and employee than in the facilities which it has provided for continuity of labor and increased dispatch in the execution of orders. Before the year 1845 the shipping trade in clothing was of the most meagre character. One great cause of this was that, as all the goods were made by hand, and by out-door workers, who had their families to attend to, shipping contracts were often lost through delay in production. A sick child, a funeral, a drinking bout, and fifty other causes would often intervene to prevent prompt delivery of the goods given out to make.

How greatly this was altered after the introduction of the sewing machine may be gleaned from the following illustration. One day during the late American War, at three o'clock in the afternoon, an order from the War Department was sent to New York by telegraph for 50,000 sand bags. By two o'clock the next afternoon, the bags were made, packed, shipped and started off southward. Although skilled labor would not be required for an order like this, yet there are firms in existence to-day, in this country, who would have facilities for executing an order for 50,000 suits, where skill would be required in every department, in a remarkably short space of time. Cutting machines, which can cut from 700 to 1,000 juvenile suits per day, are now in almost universal use. Machinery is used not only for machining, but for button-holing, basting, pressing, etc., and although much remains to be done in this direc-

tion, yet the saving of time, capital, and labor has been incredible since the sewing machine has been introduced. In 1862 it was estimated that in the United States each machine saved to its owner 50s a week, or say £130 per annum, in wages alone, or an aggregate saving in wages for the whole country of about thirty millions sterling. In 1875, that aggregate saving had risen to one hundred millions sterling, and to-day these figures must be greatly increased.

The sewing machine may be said to have been the friend of all and the enemy of none. The tailoring trade has been vastly improved, and the condition of the workman has been elevated from that of comparative serfdom into opportunities for achieving competence. Every branch of textile industry has received an impetus, for nearly every kind of material is manipulated rapidly and deftly by the machine. Goods made from leather, gutta-percha, india-rubber, furs, straw, felt, woolen, linen, cotton, silk, mohair, and many other materials, are all subject to the wondrous spell of this creative genius. And so is nearly every article used in trimming garments, such as buttons, braids, sewing cotton, thread, sewing silk, linings of infinite variety, canvas, and a host of other manufactures too numerous to mention. Then it was calculated that in the year 1877 no less than 100,000 persons were employed in the manufacture of the machine itself and the various trades connected therewith in England. In the United States the number was much larger. In France and other European countries the number was estimated at 50,000.

It will be universally admitted that when a sewing machine can be sold retail at a few shillings, and that a boy's suit can be produced, at a profit, for as low as a shilling, no age in the world's history has done so much to provide the outer man of the very poorest with protection. As we have before observed, the original cost of the machines was from thirty to forty pounds. This was the result of the heavy royalties, costs of litigation, and other similar causes. In England, however, since the date of Thomas' patent for Howe's invention, over 250 patents have been granted for improvements in sewing machines. Hence the gradual reduction of price.

Nothing, however, is perhaps more extraordinary than the rapidity which has characterized the adaptation of the machine to the wants of the whole civilized world. This was most notably the case in the United States. In 1860 it was ascertained that on that great continent, with a population of 25,000,000, there were in use no fewer than 200,000 machines. In Great Britain, however, there were not more than 25,000.

HOW WOOL IS AUCTIONED.

London's wool trade is done in Coleman street. The salesroom in which the auctions are held is large enough to seat 520 persons. In the season the sales go on continuously from 4 p.m. to 9 p.m. for five days of each week, and for a few hours on Saturday. As much as 17,000 bales have been sold in a day, but the average is about 13,000 bales a day, a quantity which is quite sufficient to keep the buying brokers and salesmen at work for fourteen hours a day.

Within easy distance from the salesroom there are ten great warehouses where the wool is stored and shown for sale. They are good warehouses, but not so well lighted as the wool warehouses at Sydney and Melbourne. The bales are placed on their sides in tiers of three high, and each bale is cut, so that it may be easily sampled or examined. In cases where there is the slightest suspicion of uneven qualities being in the pack, the contents are almost completely pulled down on the floor. The brokers are very keen in the work of inspection, and there is not the slightest chance for tricks to be played on the trade.

Before four o'clock in the evening the catalogues are marked, and the crowd assemble in the room. The public have a small space at the back of the brokers' seats. The auctioneer, with his two clerks, takes his position, and the battle commences. From the moment that the first lot is called there commences a din of shouts and screams, which never ceases for two hours or more,

when the last principal lot is sold and the star or small parcels are entered upon.

The only unexcited one of the party is the auctioneer. He never raises his voice above its ordinary speaking range, and he has to be sharp of eye to pick out which was the first bidder. The difficulty with the auctioneer is to pick out of the ten gesticulating, excited bidders who was the first. Right or wrong the man is named, and down goes his name. This sharpness in getting first on what is likely to be the limit of the bidding is of great importance. In some lots a halfpenny advance would mean from £40 to £60 or more. The buyer has to go slow when large lots are under the hammer.—*Sydney Herald*.

THE SAXONY HOSIERY DISTRICT.

A few miles south-east of Thalheim, the little village of Hornersdorf lies, perched right up amongst the mountains. Here the old house-industry is still alive, and turns out goods in brown for dyeing purposes, made on 27 gauge, 30 gauge, and 33 gauge frames. Like the other villages that have adhered to the old methods, Hornersdorf has lost its importance, and is being drained of all the able young workpeople, who cross the mountains to Auerbach and Gornsdorf. These two villages are rapidly growing in importance, owing to the introduction of modern machinery. Walking for a short time in a northerly direction, we arrive at Auerbach, and all along the road at intervals of about five minutes, we pass factories, and by the time we have traversed the length of the second village, Gornsdorf, we shall have noticed sixteen or more factories, some of considerable size. Five years ago, both these places could not boast of a factory, being entirely devoted to house-industry. It is a remarkable feature of these factories that they are occupied by a great number of independent tenants, some having only three or four machines, for which they rent just as much space as they require. The rent includes lighting and steam or water-power. In one amusing instance, seven brothers-in-law occupy parts of a building owned by their common father-in-law.

The machinery used in these two villages is chiefly on the Cotton's Rotary system, Hilscher's and Paget's styles, and a fair proportion is 33 gauge. About 1852, circulars were introduced into Gornsdorf, and were used very extensively for many years, but now, of about 40,000 dozens weekly, made in the two villages, quite two-thirds are full fashioned. The circulars now made are chiefly 7/1 and 1/1 ribbed. A few plain circular hose with mock seams and fashioned French feet are also made. It is an interesting fact that in 1805 all the yarn used in this village was hand-spun by the inhabitants, the finest number produced being 40. Before passing on, attention should be called to the strange way in which most of these Saxon villages are built, as the two just discussed are a very good example of it. The houses do not cluster together and form groups, but are strung on each side of a long road running down the middle of the valley. Many villages are miles long, and take two hours to walk through entirely, although having only 5,000 to 10,000 inhabitants. Gornsdorf joins nearly on to Meinersdorf, the seat of the fine circular goods. The very cheapest goods that can be made are turned out here. A whole dozen of women's hose can be purchased for 10d. Cotton's Rotary machines, however, have made their appearance here too, of late years, and children's ribbed hose, with circular and straight legs and French feet, are becoming quite a feature. Formerly, circular goods were turned out here by the ton, but the production has gone down steadily. It is estimated that about 5,500 circulars are made weekly now. The production of full fashioned goods is 2,000 dozen, and nearly 4,000 dozen of various ribbed goods are manufactured. There are two factories here full of 33 gauge Cotton's Rotaries.

Ten miles due east of Meinersdorf lies Gelenau, hedged in on all sides by high mountains, which are appropriately named the Gelenau Alps. Some years ago the entire village was inundated by the melting snows from the mountains, and a monument commemorates the event and perpetuates the names of those who lost their lives. Within the last ten years three very important factories have been erected, besides several smaller ones. The large factories chiefly employ 33 gauge Cotton's Rotaries, but

quantity of children's ribbed hose, fashioned and with straight legs, are made. In many homes knitting machines may be seen at work, making coarse cotton and wool goods for the German home trade. Counting large and small establishments, there are about thirty concerns in Gelenau employed on hosiery. Walking over the hills to the north-west, an hour sees us at Burkhardtsdorf, the great centre of coarse 27 gauge goods. There are nearly forty concerns all making nearly the same goods here. The bulk of the production is 13 single hose, better goods of 1-12's, 2-24's, 2-22's, and 2-20's yarn being in a small proportion. Previous to the introduction of the McKinley bill in the United States, the 13 single stocking was rarely made, but after this, it became the staple article in coarse gauge goods owing to its cheapness. Before the high tariff, Chemnitz houses paid the village maker 2s. to 2s. 2d. per doz. for making these goods, but to-day 1s. 1d. is the usual price, and in slack times they have been obtained for 10d. Nearly all the goods used for fleecing purposes are made in this place.

A beautiful road through the pine forests to the north-east leads to Dittersdorf, where there is a large factory making shirts and pants. There are three hosiery factories as well, with an assorted plant of 27 gauge and 33 gauge machines, for both hose and half-hose. On the top of a lofty hill, about due west, the little village Eibenberg is perched. It has three small factories making 27, 30 and 33 gauge hose and half-hose. It will, probably, never boast of any great importance owing to its awkward situation, and the natural difficulties opposed to an extensive intercourse with other localities. In the valley to the north, Berbisdorf lies, more favorably situated. Several factories have sprung up here in recent years. They contain Cotton's and Paget's machines, 27, 30, 33 and 36 gauge, and besides cotton work a considerable quantity of cashmere yarn. A little to the north-east, we get to Einsiedel, and are once more within an hour-and-a-half's walk of Chemnitz. Of about ten factories, the more important are owned by large Chemnitz firms, who have removed their machinery there for the sake of economy. The other concerns make all kinds of goods, plain 27, 30, and 36 gauge hose and half-hose, shirts and pants, and coarse worsted knit goods for the German home trade. The road back to Chemnitz passes through Erfenschlag and Altchemnitz. In the former village there are five factories, two of chief importance, making 27 gauge and 36 gauge plain goods respectively. In the latter place there are three concerns, making an assorted stock of plain goods, and six small establishments are devoted to knit wares. We have now arrived at the end of our journey touching the large group, south and south-west of Chemnitz. In the next number we shall take our readers to the places devoted to hosiery in the west, north and east. This is not so large a group as the last, but has great interest as comprising the homes of high fancy goods, lace goods, Swiss underwear and gloves, and many other industries intimately related to the hosiery trade.—*Knitter's Circular.*

FIXING OF DIAMINE COLORS WITH METALLIC SALTS.

(Translated from the *Berliner Farber Zeitung.*)

The fixing of direct colors on to the cotton fibre, absolutely fast to washing, is one of the principal yet incompletely solved problems of cotton dyeing. Partial solution of this difficulty was no doubt arrived at by the introduction of such colors as were suitable for diazotising and developing on the fibre, a treatment by which also a substantial increase in the depth of the shade is obtained. The number of these colors is not yet sufficiently large, however, to make it possible to obtain that great variety of fast shades which the trade requires. The diazotising and developing process is limited to the production of certain standard shades such as red, yellow, orange, blue, blue-black, black and brown, where it serves its purpose in no small degree.

The ordinary and well-known methods of fixing colors by a previous mordanting of the cotton, etc., lead to abortive results when applied to direct cotton colors. With one or two of them, for instance with Diamine Fast Red F, dyeings on chrome mordanted cotton show a superior fastness to washing, but the tendency to bleeding on to the white is hardly less than if they had been

died by the usual methods. The better way of fixing is by treatment of the cotton dyed with Diamine colors with metallic salts. The results obtained by this method are, however, not quite satisfactory in every case.

This method of fixing the direct cotton colors is a subject of a patent granted to the *Farbenfabriken vorm. Friedr. Bayer & Co.*, who apply it to their Benzo Azurine. The patent is an outcome of the observation that certain color derivatives of the diamidodiphenol-ethers, like Benzo Azurine G and 3G, Heliotrope, etc., can be fixed so as to be fast to washing by means of the salts of copper, zinc or nickel.

The English patent No. 15,326-93 of the *Farbwerke vorm. Meister, Lucius and Bruning*, reveals to us the applicability of the above process extended to the use of chrome compounds, to a larger range of such direct colors which contain salicylic, o and m cresotinic, oxynaphthoic and 1.8 dioxynaphthaline mono and disulphonic acid; all the salts of chromium oxide are applicable as fixing agents, but it is said that the basic chloride of chromium is especially adapted for the purpose.

The possibility of fixing cotton dyeings of direct colors with chromium compounds, viz.: chromium fluoride, which is by no means inferior to the chromium chloride, but at least its equal, has been recommended discriminately to their customers by Messrs. Leopold Cassella & Co. since January, 1892, in connection with their diamine Fast Red F and Diamine Bronze G. It is not deemed necessary to make the process public and to recommend it generally, because, if it improved the fastness, it did not make it absolute.

Another obstacle which must be taken into account and is the principal difficulty in the fixing of direct colors on the cotton fibre is the incontrovertible fact that it is easier to fix the dyestuff than to overcome its strong affinity to the same. Traces of color, minute particles, which bleed off the dyed on to the white cotton when scoured together suffice to condemn whole dyeing. It is therefore quite evident that the saddening of the dyeings with chromium compounds is only advantageous in some isolated cases, in the dyeing of cotton warps intended for weaving plushes, for instance, with Diamine Fast Red F, the saddened dyeings of which have been found to be an excellent substitute for warps dyed with camwood.

Besides the two methods of fixing the color derivatives of dianisidine with salts of copper, and the colors forming chromium compounds by saddening with chromium salts, there is another important process which applies to a new group of direct dyeing colors. It refers to two colors recently issued by Messrs. Leopold Cassella & Co., Diamine Jet Black OO and Diamine Jet Black SS. In their dyeing properties they behave in an absolutely similar manner to the well-known direct cotton colors. They dye not unlike Oxydiamine Black N, a full black in one dip, but from this and other similar products they distinguish themselves by their extraordinary fastness to light.

Dyed direct they show the usual fastness of such colors to washing, but if the dyeings be chromed for a few minutes only in a boiling solution of bichrome, perfect fixing results. This reaction is evidently an oxydizing process; for the same effect with more or less alteration of shade can be obtained with the most diverse oxydizing agents, such as sulphate of copper, ferric chloride, ferri-cyanides of alkalis, and the fixing is better the stronger the effect of oxydation. In a similar—but not in equally as perfect—a way, treatment with bichrome influences dyeings of Diamine Brown M and B, for which colors the saddening with a mixture of bichrome and blue vitriol has proved most advantageous. We now specify the different Diamine colors which show a decided improvement on being fixed after dyeing.

I. *Treatment with sulphate of copper.*—This may be done by passing the goods after dyeing through a solution containing 3 to 5 per cent. of their weight of sulphate of copper, according to depth of shade required, at a temperature between 170 deg. F. and boiling point, for between a quarter and half hour. With piece goods this can be done on a sloppad. This method shows good effect with Diamine Brilliant Blue G, which is a derivative of dianisidine and is a color

of a bright blue shade just now being put on the market. The so-called copper treatment renders the color slightly duller, but it increases materially its fastness to washing and light.

The fastness to washing and milling attained with Diamine Jet Black SS and Diamine Jet Black OO by the above process, is excellent, and the dyeings do not bleed even when being washed repeatedly. But the shade changes to a brownish black after the treatment with sulphate of copper, and this process is therefore not to be recommended where these two colors are used alone. They are, however, very useful when dark browns must be produced from the shading Diamine Brown M and Diamine Brown B, two of the latest dye-stuffs, showing of all the known direct dyeing brown colors the best resistance to light. Diamine Brown B is in this respect excellent, even in light shades, whereas Diamine Brown M is at its best only when dark shades come under consideration. The fastness to atmospheric influences and alkaline solutions increases in these two colors when the treatment with sulphate of copper is resorted to. Still better effects are obtained with a mixture of equal parts of bichrome and blue vitriol, and these will be referred to later.

Diamine Orange B.—The shade alters materially to a brownish hue with increased permanency. Diamine Brown 3G.—Like Diamine Orange B. Diamine Bronze G.—The greenish tint of the color is replaced by a browner shade. The fastness to both light and scouring increases considerably. Diamine Yellow N.—The color becomes thinner, reddens and gains in fastness.

By mixing the above colors a large variety of fast shades may be obtained, ranging from a yellowish brown down to a full seal-brown.

The fact seems to be well-established that the chemical effect obtained by the saddening of the above brown and black colors with blue vitriol differs from that caused by the action of the same copper compound on Benzo Azurine and Diamine Brilliant Blue G, as it may be reasonably supposed that in the latter case fixing by oxydation takes place. This conclusion may be drawn from the fact that the saddened blues will show a considerable alteration in shade after soaping and washing, a change which is not perceptible with the first named series of colors.

II. *Treatment after dyeing with chromium fluoride.*—This can be effected by passing the goods for $\frac{1}{4}$ to $\frac{1}{2}$ hour through a boiling solution of this salt, the quantity of which is regulated by the amount of color to be fixed, or in other words by the depth of shade required. Heavy shades take 3 per cent., and, speaking generally, each pound of color supposed to be on the fibre requires one pound of chromium fluoride. The effect of chroming is shown as follows:

Diamine Fast Red F.—The resistance to washing increases considerably and the color bleeds less on to white cotton than when not chromed. The fastness to light suffers somewhat by the fixing process. As a substitute for camwood in the dyeing of cotton warps intended for plush backings, Diamine Fast Red F, fixed as above, can hardly be surpassed.

Diamine Bronze G becomes fast to washing and milling and does not bleed on to the white even in heavy shades. Diamine Brown B and Diamine Brown M.—The fastness to washing increases.

Diamine Yellow N behaves similarly to the browns. Dyeings intended to be fixed with chromium fluoride may be shaded with any of the other Diamine colors, as their shades are not affected by this process. But the fixing takes place only in the case of the above mentioned colors.

III. *Treatment with Bichrome.*—This is effected by boiling the dyed goods for ten to fifteen minutes with 3 to 4 per cent. bichrome. With piece goods this may be done on a pad. It is important to bear in mind that all such dyeings which are intended for this process ought to be dyed with the addition of either common salt or Glauber's salt, since the presence of carbonate of soda in the piece goods will impair the action of the bichrome on the color. A favorable result of this treatment has been observed with Diamine Jet Black SS, a dyeing of which with 5 to 6 per cent. of color, treated for 15 minutes in a boiling solution of 4 per cent. bichrome, is very

fast to washing and milling, with only a slight tendency to bleed on the whites, and with the additional advantage of possessing a great resistance to acids. It is, however, possible to maintain an equally good and fast black by the diazotising and developing process, starting from a 3 per cent. dyeing of Diamine Jet Black SS, or, if a better shade of black be required, a grounding of 4 per cent of either Diamine Black BO or BH developed with phenylene diamine. But there are cases where the diazotising and developing process is not desirable, and then the fixing with bichrome deserves every consideration. For in spite of its short existence this process is already well established with linen thread dyers, as the blacks obtained by this method have, when compared with logwood black, the advantage of being faster in every respect, of leaving the thread smooth and free from lumps and surface coloring matter, which tends to clog the eye of the needle.

Diamine Jet Black OO is in point of fastness not inferior to Diamine Jet Black SS, but its shade is less pleasing than the latter Diamine Brown M and B. —Although bichrome fixes these colors by itself, the mixture of equal parts of bichrome and sulphate of copper must be recommended on account of the very good results obtained from it. The amount of each of the fixing agents is regulated by the quantity of color to be fixed, and should not be less than two pounds each of bichrome and sulphate of copper for each four pounds of color.

The possibility of fixing the colors mentioned in group III with oxydizing agents admits of their combination with either aniline black or cutch. As a bottom of aniline black Diamine Jet Black SS must be considered superior to Diamine Black RO, hitherto recommended for this purpose, as it admits of producing a bottom of any depth of shade, with the possibility of fixing both the ground colors and the aniline topping simultaneously by oxydization or by a passage through a bichrome solution, resulting in producing absolutely fast dyeings. For a bottom of 4 per cent Diamine Jet Black SS a topping with an aniline mordant may be considered most advantageous.

When dyeing with cutch, the colors may be added to the cutch liquor. The bichrome used in saddening of cutch browns also fixes the two Diamine Blacks and Diamine Browns M and B and renders them absolutely fast to washing. In point of bleeding, however, they are not quite as fast as pure cutch, since they lose slightly in color on being washed repeatedly.

The dyeing process is conducted in the same way as with pure cutch, with the exception that either Diamine Brown M or B or Diamine Jet Black OO or SS are added to the cutch liquor along with 30 per cent Glauber's salt crystals. These colors may also be mixed in any proportion among themselves in the dye-bath charged with cutch. Otherwise the dyeing takes place at the boil, the cotton is left in the liquor as usual over night, the liquor drawn off to be kept for succeeding lots, and the dyed cotton is saddened with a mixture of bichrome and sulphate of copper. The advantage of this method is of course quite patent, as dark brown shades may be obtained in one dip, dispensing with repeated steepings in the cutch liquor and also saving a topping with either iron or logwood liquors. It must be pointed out that dyeings obtained with an addition of Diamine Brown B are faster to acids than if Diamine Brown M had been used, and that either Diamine Yellow N or Diamine Fast Yellow B will be found useful for flattening the shades. Although the saddening may be done in the dye-bath itself, it will be found more economical to conduct the dyeing and the fixing as separate operations in different vessels.

The requirements of the trade ought of course to be consulted to find out in which cases fast colors must be dyed and saddening resorted to.

The colors mentioned above and fixed in the way explained— with the exception of Diamine Brilliant Blue G, which alters thereby in shade—are in all cases fast to severe washing without changing in shade or intensity. If it is, however, a question of producing colors which must not bleed on to whites and also stand milling and light, the following can be strongly recommended:—Diamine Jet Black SS fixed with bichrome. Diamine Brown B with bichrome and sulphate of copper. Diamine Bronze G with chromium fluoride.

JUTE RUGS FROM JAPAN.

The benefit resulting from a determined advance in what is believed to be the right direction, no matter at what cost, is shown by the development of the Japanese jute rug trade.

There is a firm in Kobe which is shipping vast quantities of rugs to the United States, and which is introducing the manufacture into Japan in a curious way. Perhaps the most expensive book ever made was produced by this firm. They had artists go to all the great museums of Europe, and copy the colors and patterns of the finest rugs. They bound these patterns in a book, which they sent out to Japan and put into the hands of the workmen, and now these famous rugs are being copied in jute. The jute was brought from India, and the new rugs are equal in color to the originals. They sell for a song, in comparison with the Turkish rugs, and there is a possibility that the Japanese will take up the making of woolen rugs.

"There are villages in Japan that make nothing but jute rugs," says F. G. Carpenter, in a letter from Japan. "I visited one known as Sakai, near Osaka, and I was introduced to the biggest of the manufacturers, a man who employed 3,000 hands. The work was done almost altogether by hand. The proprietor's name was Mitani, and he was a very bright Japanese, indeed. He had 200 houses in his establishment, and he took me to a number of these. Some of the children, who were rug-making, were under six years of age, and there were a number of girls of about ten. They receive from seven to eight cents in silver a day, they work from eight o'clock in the morning until six o'clock at night, having an hour at noon for lunch. They work on Sundays and weekdays, but have two holidays during each month." The Japanese children are not puny or sickly, and rarely exhibit depression. They are a happy, good-humored lot, who seem to take to work as naturally as to play. It is wonderful how cheaply these jute rugs can be made. Take a rug, 3 feet wide by 6 feet long, of the kind that is used for hearth rugs, and which costs at retail about \$2.25. It takes a Japanese about four days to make one of these rugs. The jute has to be imported. It must pay a duty on coming into Japan, and the rugs pay a duty on going into the United States. Altogether, out of this \$2.25, there come about sixteen profits, but the wages are so low that the Japanese can make them.

Hemp and cotton carpet manufacturing is a new industry, and has its seat in the city of Osaka, says Swiss Consul Ritter, who has also been observant of this development. These carpets—called by foreigners Osaka carpets—are cheap, but not durable. All kinds of patterns imaginable, as well as every length and width, are manufactured. * * * To-day, fine imitations of Turkish and Egyptian carpets can be found on the markets. These carpets are all made by children, and, in the low, gloomy rooms of the Japanese houses, troops of little boys and girls are working at this dusty trade with the zeal and intelligence of grown people. These children's pay varies, according to their efficiency, at from three to ten cents a day.

OLD-TIME PROCESSES.

There is much of interest for those familiar with modern industrial processes in looking into the old-time ways of doing the same things, or what was the nearest approach to them, to which our predecessors attained. Thereby one often comes across some curious things, while a wrinkle or two may be picked up which would be found useful even now-a-days, and possibly one may often prove the truth of the old adage, "There is nothing new under the sun," by finding a record of some forgotten idea or process which has been more recently brought forward as something entirely novel. Such a looking back may give rise to trains of thought which will ultimately lead to new developments in the future.

In 1619, George Wood, by paying into the exchequer of His Majesty James I. the sum of "xii,"—whether shillings or pounds we do not know, says *The Dyer and Calico Printer*—got the monopoly of printing "linnen" cloth in colors for a period of 21 years. It would seem that the printing of calicos or cotton cloths was at that date unknown, and it is quite probable that the amount of

linen printing carried on was not great, or we think the king would have required more for the grant of the monopoly. The same gentleman and James Jenkinson subsequently invented "a new way to print linnen cloth, and for the purpose of acquiring the sole right of using this process they obtained a 21 years' grant from the same gracious king, who appears to have repented somewhat of the low rate he formerly got for the privileges he granted, for this time the payment was increased to "xli."

Madder has been used for dyeing for over 200 years, and, as our readers well know, it is only within the last 25 years that it has been replaced by alizarine. This plant is not a native of England, but in 1624 William Shipman proposed to grow it in this country, but we rather suspect he failed, as the climate is not at all suitable, although he had the sole right of growing it for the space of 21 years—of course, on condition that he paid for the privilege. A certain James Smith was also granted a similar privilege some years later.

William Sherwin was, in 1676, granted a patent for a new and speedy way of printing broad "callicoe and Scotch cloth" with a double-necked "rowling press," that being, it is said, the only true way of East India printing and "stayneing" such kind of goods. What the double-necked rowling press was like it would be interesting to know, especially if it had any resemblance to the roller printing machinery in use to-day.

One of the oldest dyes is archil, and apparently this was introduced some time about the middle of the seventeenth century. Towards its close this was extensively used in Europe, under the name of lackmus, in dyeing crimsons, clarets, blues and purples. Abraham Kemp was the means of introducing it into this country, and he obtained a patent for its production and use, although how he made it is not now known. There were no technical journals in those days.

Laundresses have used blue for tinting their white linen for centuries. At one time indigo was largely used for this purpose and one method of preparation was to grind ten pounds of it very fine with water, then add a pound of lavender water, boil it, and strain through flannel.

To make a red mordant for printing with, there was used, about the middle of the last century, alum, arsenic, white argol, chalk and lead acetate, mixed in a liquor thickened with gum arabic; if darker shades were required, copperas was added.

The parent of the modern roller printing machine was brought out in 1743 by William Keen and Moses Platt. Their machine consisted of three cylinders or bowls suitably mounted in a frame, one behind the other. Above each of these was fixed an engraved roller, and again to each of these a feeding roller for the color was attached. The cloth was printed in three colors by passing it in succession between the three sets of rollers.

It may be remembered that Bancroft paid very considerable attention to the use of cochineal in the production of scarlets on wool, and that he placed the process of dyeing with it on a proper basis. Previous to him, Onesiphorus Paul patented a process for dyeing wool with cochineal and turmeric, using in conjunction therewith argol and tin spirits, which latter body he made by dissolving block tin in a mixture of nitric acid, water, and sal ammoniac. He did not get the full shade all at once, but dyed to about half the depth, then dried and milled the goods, and finished by dyeing up in a fresh bath to the full shade. The main object of this mode of working appears to be the separation of the lints and other vegetable matters in the cloth. These would be partly destroyed by the acid nature of the dye-bath, and were partly picked out by hand, being more readily distinguishable in the half-dyed cloth than in the grey piece.

An old-time method of preparing indigo extract to be used in dyeing Saxon blue was to take one pound of oil of vitriol, two ounces of indigo, one ounce of red arsenic, four ounces of cobalt, and four ounces of "hole armoniak." We have here evidence of the want of chemical knowledge which results in using ingredients that cannot be of any value in the composition. This is not altogether to be wondered at considering the period, circa 1750.

Cudbear appears to have been the invention of George and

Cuthbert Gordon in 1758—that is, if we can give credence to a patent specification of that date. It was brought out as a substitute for archil and was prepared from three ingredients, a lichen found growing on rocks, a plant named *muscus rupibus*, which also is found growing on scattered rocks where it can find a small quantity of earth, and *muscus pyxidatus*, a plant growing on marshy ground. These are dried, ground in a mortar, mixed with spirit of wine and spirit of soot, to which is added quick-lime; this is allowed to digest for 14 days, when the composition is ready for use; or if the digestion be allowed to proceed for 28 days then a more solid product was obtained. What spirit of soot was is rather doubtful, most probably an ammoniacal liquor.

A method of preparing "orchell" was devised in 1763 by George Davy, who prepared a spirit from wine by distilling it with alum, potashes, and lime. This "spirit," of course, is a weak ammoniacal liquor. Here Davy used ingredients which were of no use in promoting the reaction, in fact the alum was harmful rather than otherwise. The "spirit" so obtained was used to treat a rock or stone moss, the digestion being allowed to continue for nine days, when some Spanish white was added, after which it was allowed to work together for another nine days, and finally mixed with salt, saltpetre, and sal ammoniac.

The name of Edward Bancroft is an honored one in the annals of textile coloring. He was one of those patient investigators who were not content with doing things as their fathers had done before them, but wished to get to the bottom of the processes they worked, and to find out the real action which takes place. On his labors much of modern dyeing has been founded—to him English dyers owe the best methods of dyeing with cochineal, the use of quercitron bark, of the American hickory or walnut tree, and of the West Indian red mangrove tree. The two latter are not now used in dyeing. He was one of the first to point out the real function of such mordanting bodies as alum, tin, salts, copperas, bluestone, in dyeing, and that many other substances at that time added by dyers to their dye-baths were of no use. He left behind a record of his work in "The Philosophy of Permanent Colors," first published in 1794—a book well worth reading even to-day. To him we owe the division of dyes into the two main groups, "substantive" and "adjective." We have even now somewhat transgressed on the space at our disposal, without, however, by any means exhausting the subject, to which we may return on some future occasion.

ELECTRIC POWER IN TEXTILE MANUFACTURE.

The question that every mill manager and engineer must consider is this. We have an excellent steam plant or a suitable water power at the mill, delivering power by ordinary belt transmission throughout the mill. It is in good condition and good for a great many years, and is paid for; and if its lines of shafting are out of line or level, that can easily be corrected; and it is a reliable power, and for many years has never caused a stoppage of the mill of any account. It is, in fact, a reliable means of transmitting power and not costly to maintain. The question is, whether or not there is any advantage in substituting for this transmission that of electric transmission in any of its various forms. To make such a change there must be good reasons, and not only must the new power be more reliable, which it hardly can be, but it must be less costly to install and less costly to maintain, and possess these advantages to such a degree as to pay for taking out the old and putting in the new.

The claims of superiority for electricity are always based upon the assumption that a belt transmission is decidedly wasteful of power and costly to maintain. Is this so? asks "Engineer," in a recent number of the *Boston Journal of Commerce*. Taking an ordinary cotton or woolen mill, the entire friction load of the mill varies from 18 to 30 per cent; and this includes not merely the friction due to the weight of the shafting in its boxes, but also the friction due to the tension of the belts from the various counters, and this is by far the greater portion of the friction load. Taking an indicator card with the load on and the load off, means simply when the machines are at work, as against when they are not at work. Such a friction load includes, therefore, everything except

the load of the machines, and includes also the internal friction of the engine itself. It does not seem to matter very much in actual practice whether the shafting is light and run at a high speed, or slow and run at a slow speed, the friction load shows no important change. The writer has tested old mills with heavy, slow-running shafting, that nearly every one would say would show a heavy friction card, and also modern mills specially designed with light, fast-running shafting that looked almost as though it would run itself, and yet the older mill showed the least friction load, and this, I believe, is the experience of many mill engineers. This friction loss should not be more than 25 per cent. in the ordinary textile mill, and the managers that will permit a greater amount by imperfect alignment and other causes would just as surely carelessly handle an electric transmission and make it also more expensive than it ought to be. It is this 25 per cent. that is set up, and the inference would be that with electricity this is nearly all done away with. But when we come to consider the facts, the loss of energy by the use of a generator is quite as much, and it seems to me instead that the balance is on the side of the belting. The methods proposed for electric transmission are to generate the current at the central engine-room, or water power, and to carry the current to various rooms. The proposition is not seriously urged, to place a motor upon each machine in a cotton mill, for that would be a costly proceeding, and even in the shops of the General Electric Co., where the idea would be expected to be carried to its fullest development, a motor in each room drives the shafting in that room, or for a considerable group of machines, thus transmitting the power through belts and shafting, and saving merely the actual friction of transmission from one room to another. If this is to be the method, then the friction of these shafts and belts should be added to the loss in the generator and dynamo, but which is seldom done. If the proposition is to simply put one, or possibly three or four, motors in a spinning, or carding or weaving room in a textile mill, retaining all the shafting in the room, it could not but result in a decided loss of power, for the transmission from room to room is hardly worth making much change over, and this is certainly the usual proposition.

Taking the ordinary mill, we have first the loss in friction of the engine itself, seldom less than 10 per cent. The actual power consumed in friction in the belt tower and in the shafting necessary to transmit from one room to another, would hardly be 10 per cent., and another 10 per cent., to take the worst cases, would be in the friction loss in driving the various counters and loose pulleys to the various machines. Of these items it is probable that the second one, of transmission from room to room, is almost always less than 10 per cent. of the friction load, and is the most constant because usually put up with more care and receiving more attention and lasting longer than the many small shafts and counter shafts. And as a matter of fact, this item is the only one the mill engineer finds he can save by electric transmission. By electric transmission an engine is to be operated as before, but generating electric current and this current to be transmitted over a wire to a motor and reconverted into rotary motion again, to drive a considerable amount of shafting, nearly as much as before, in fact. It is possible that lighter shafting could be used, but as the friction loss comes much heavier from the strain of the belts rather than the weight of the shafting, having lighter shafting will not be found of much advantage in the matter. The friction loss in that room will be about as much whether subdivided or not.

We have still retained, therefore, two important sources of loss, the loss in the engine and the loss in each room. And the only possible gain presented is that small loss of transmission from room to room. But against this slight gain is set the fact that there is a loss in the transmission of the current itself, even with no leakage, and again a loss of certainly 10 per cent. in reconverting the current into rotary motion in the motor. There is, first, the loss of changing the rotary motion of the engine into electricity, and no generator can be depended upon to constantly deliver over 90 per cent. of the power delivered from the engine, and no motor can be depended upon to continually deliver in another form more than 90 per cent. of the energy it receives in the shape of current. So there

are here two losses which together actually amount to double the transmission loss in belting. Setting the two methods against each other the mill engineer finds that with his belt transmission he loses 10 per cent. at the engine, 10 per cent. in transmission and 10 per cent. in small shafting in the rooms, or a total of 30 per cent. Against this, by the electric transmission, he loses 10 per cent. in the engine, by reconverting the energy several times, and line loss 20 per cent., and in the rooms, by small shafting, 10 per cent., or a total of 40 per cent., a balance in favor of belt transmission of 10 per cent. Certainly there is nothing in this comparison that would induce a mill man to take out his belt transmission and substitute electric transmission therefor on the score of saving in power.

There are other considerations in the matter, however, and these show no better. Convenience is one of them; while an important item, the cost of power, is not the most important. Instead, the manager must first consider continuity of product. It would not pay to run a machine at a slow speed simply because it will cost less in power to run it. The machine is driven to its greatest production even though it costs more in power or fuel. The labor item does not vary nearly so fast as the fuel item, and with a certain constant labor cost the fuel cost may vary considerably, hence has a less important bearing upon the matter than is frequently assumed. The manufacturer wants to produce a horse-power at the lowest cost, but he does not care to sacrifice production of the mill to such an end. In many times of low water, it would not be considered whether power cost \$40 or \$100 per horse-power per year, so long as the mill was kept running. If electricity could offer any advantages in this direction, the fact that it would be more costly might even be overlooked. But it offers no advantages, for the ordinary steam mill runs year after year without accident of any moment outside of the engine itself, and an accident to the engine would cripple an electric plant just as quickly as belt transmission. The possibility of running one portion of a mill independently of another, does not possess any advantages when considered, for the mill runs all its departments at the same time, and if not, it would be as wasteful to run a large engine to develop a small amount of current as to run a large engine lightly loaded, even considering that all the shafting is run, which need not be the case, for almost invariably the various rooms may be thrown out by clutches, if one department only is to run.

There may be some lines of business where a motor on each tool would pay. In machine shops, for instance, many of the tools are idle for considerable lengths of time, and needing heavy drives, the shafting loss is a considerable one, that could be saved by an electric transmission, not from the engine to the room, but in the room itself. Such places cannot, however, be compared with a cotton mill or woolen mill, where it is intended that all the machinery shall be practically in constant operation. Nor is it a just comparison to cite the cases of certain southern cotton mills. These mills receive their current from an electric generator at a water power a considerable distance from the mill, and no other method is feasible. It would be foolish indeed to take this current and pass it through an immense motor at one end of the mill and drive the whole mill from this motor, for then the transmission item of 10 per cent. would be a dead loss. Such a method, however, is not at all comparable with a steam mill, for in one case the current is available, and in the other it must be made and reconverted several times, and this is where the great loss is, and is wholly useless, for the work is close to the engine, and the engine delivers just the energy that is wanted at the machine. Electricity has many fields open to it, and one of them is the making available unused water powers, and powers that could not be otherwise used, for it would not pay to place a mill at the power itself. This is the use made of it at the south, but where coal is to be used and steam engines make the current, no one who looks into the matter closely will ever think of substituting for belt or rope drives an electric transmission. The reason our steam mills cling to and put in belt drives is, not that they have not looked up electric transmission, as many editorial writers, carried away with electric ideas, assume, but because they have investigated the matter, and find it to be not

only more costly to install, even not considering pulling out an old plant, but also more costly to maintain, and delivering to the machine less of the energy that is given by the steam to the engine piston; and until electricity is derived from some other source than the steam engine, it never will be used, for generators and motors are now theoretically, with an efficiency of 90 per cent., as efficient as it is possible to make them.

Foreign Textile Centres

MANCHESTER.—The cotton market does not show much strength, although some individuals appear to have a good deal of confidence in it. Cloths have been bought only sparingly, with the exception of North-east Lancashire satteens, which are well sold. Colored goods for the home trade are not being sold freely at first hand. As far as the export trade is concerned, exchange is a great puzzle to many, but whether it is high or low there are always grumblers to be found. At present cotton is not in a strong position, and a rumor has been set afloat that the bulls are forcing prices downwards in order to check planting for next crop. There is no textile market more secure in the origination of sensational reports than that of cotton, and the latest specimen does not bear the stamp of probability with futures cheaper than spot, as they are at present. Egyptian counts of cotton yarns, with a few exceptions, have been strong, although the enquiries made do not always result in business. Home trade American yarns have been dull, although spinners do not seem to be pressing much for business. The finer cloths made from Egyptian cotton have been firmer, and colored goods are very steady, looms being well engaged. From India the enquiry has been brisk for some cloths, but in the case of others it does not appear satisfactory. Moderate orders for early shipments of shirtings have, however, come to hand. The China trade has not been unsatisfactory of late. Shanghai importers evidently have little anxiety as to the future, judging from the extent of recent operations. They have brought stocks of grey shirtings up to over 1,600,000 pieces, an increase of over half a million pieces compared with the position a year ago. The thirty-one native banks are doing well, and the establishment of thirteen new ones is contemplated. Raw silk quotations do not appear to be influenced as one would expect by the admitted scarcity of stocks in the continental warehouses, and the large consumption of silk trimmings and piece goods all over the world. Influences of an exceptional kind have been at work to produce this result. America has not been buying the usual quantity of raw silk, and there have been some heavy shipments from Japan. Plain cotton train ribbons have been much more to the front, but figured makes have not been ordered so freely. The patterns brought forward recently in silk vestings, which a few fashionable individuals are trying to boom for the benefit of certain branches of the English silk industry, include mixtures of floral and geometrical designs, some of the weaves having patterns in corded outlines produced by the weave. A number of people are sceptical about the silk vest, but it is too early as yet to speak definitely on the subject. With reference to laces, Brussels application on a malines ground have received attention, and bourdons are still being sold by some manufacturers, although the output is not readily disposed of. Amongst the novelties shown by French travellers or agents for French houses are whites on black, or butter on black. Imitations of horsehair effects have been brought forward by Calais houses, but the goods are only offered by a few houses. Cotton bourdons are offered at very low prices, Isigny shades being shown. In Plauen goods, malines, entredeux, and guipure styles have been selling fairly well, although manufacturers have complained a good deal of late. A black silk muslin, with loosely embroidered designs in ecru, beurre, and ivory, has received attention of late.

ROCHDALE.—Many flannel buyers are now beginning to make arrangements for the coming season, and, as the London wool sales have closed at the higher prices current, there is nothing to cause delay from the placing of orders. It is difficult to gauge the exact advance obtained for flannel, varying as it does owing to the

position in which manufacturers are placed, but it is complained that it is not commensurate with the value of wool. A fair number of orders have been placed earlier than usual, but as the different merchants do not make their plans at the same time, the business will be continued until the late ones finish at Whitsuntide. There is a slight improvement in the Yorkshire goods trade. Prices are firm. Manufacturers who are receiving orders for flannel are buying more freely of wool to cover themselves, and a fair amount of business is being transacted.

OLDHAM.—Both calico and velvet looms in the town are well engaged. A firm of private cotton spinners are about to close their mills. It is reported that three small mills have recently come to a standstill. Shuttle guards have been placed on the looms at a local firm of manufacturers. A cotton spinning mill at Milnrow is closed, and the operatives are receiving benefit from their respective associations. It is reported that some departments of the local textile machine making establishments are getting a little less busy. The out-roller covering employers have come to terms with the operatives as to a wages list and conditions of employment. Twinning employers are very busy, and it is stated that machinery has had to stand idle for the want of the full complement of hands.

LEEDS.—The recently established improvement in the cloth trade is fully maintained. The muster of home trade buyers has recently been larger. Manufacturers were found to be very resolved not to book orders except at clearly legitimate advances and many new orders were placed. There are many inquiries after patterns and terms for next winter, and comparatively little stock remains, it is believed, from last winter. Therefore makers of heavy woollens are looking ahead for a better run of trade than they had last year. All-wool naps and presidents and Irish friezes are already ordered by London, French, German and Canadian buyers. The Americans are remarkably quiet. A busy season for blankets is being prepared for. Army cloth makers are not so sanguine. The ready made clothing trade goes on swimmingly, more than one firm executing bulky orders for fashionable ready-mades for South Africa.

BRADFORD.—The full advantage of the extended portion of the Bradford Exchange is now available to members, the fitting and furnishing of the balcony having been completed. Staplers are asking prices which spinners will not pay at present, but, on the other hand, holders of wool are quite content to wait, as this is the cheapest market to buy in, and any change in the future they firmly believe will be for their benefit. The demand for merinos is continued, and in consequence there is a tendency for prices to harden. Crossbreds are steady, and there is no change in the position of English descriptions. Lustres are mostly inquired after. Alpaca remains firm, and mohair also. In yarns the lull in the inquiry on the part of export buyers continues. They have covered their present requirements and decline to speculate, as they assert that the prices demanded by the spinners will not be paid by their customers. For the most part, however, spinners decline to accept reduced offers, as they have orders to keep them employed for the present. For the home trade a good business is doing, especially in yarns of a bright description. There is no change in the piece trade.

KIDDERMINSTER.—There is no lack of business in the carpet trade, but the result is not satisfactory, owing to the advance in material having overtaken the advance in carpet. The yarn trade is extremely busy. Both woolen and worsted wools are dearer, and, as spinners have plenty of work on hand, they are not inclined to sell except at full prices. Worsteds are on an average 4d. per pound dearer than they were a month ago, but this hardly covers the advance in raw material. Woolen yarns are slowly following worsteds, and are no longer to be bought at the extremely low prices lately paid. There are very good hopes that the Worcester Cross Mills will soon be re-started, and that other machinery which has been standing idle may be brought into activity again.

WALSLEY. In the hosiery trade a steady business is being done. Fair orders are on hand for merino and cashmere goods. There is perhaps a little more doing in cotton fabrics. Ac-

counts of the lace trade are still somewhat contradictory, and the demand appears to be of a partial character. The plain net trade shows little or no alteration. Fair quantities of bobbin nets continue to be disposed of, mainly for export to the continent, and prices generally are firm. Paisley and Paris nets still meet with a slow sale, and the demand for mosquito nets is only moderate. The inquiry for silk Mechlin nets is maintained, and large quantities of these goods are being sold. A pretty good business is being done in curtains, window-blinds, and furniture laces, but machinery is not yet fully employed. In the millinery lace trade silk goods are still slow of sale, but the demand for cotton Valenciennes laces is maintained, and there is also an inquiry for point de Paris, Dentelle, Bruges, Malines, and other cotton laces. Maltese, torchon, and Brabant laces do not sell freely.

LEICESTER.—There is more activity in the hosiery trade, goods suitable for summer wear selling freely. The yarn trade is active, and future prospects are regarded as very encouraging. There is a brisk sale for lamb's wool, cashmere, and fancy yarns, but business in cotton yarns is dull. There is not much change to report in the elastic web trade.

SOUTH OF SCOTLAND.—Business is slowly improving. So far, the weather has not been of the most encouraging description for the sale of seasonable goods. Complaints are still to hand as to the condition of the tweed trade. Manufacturers find great difficulty in getting orders confirmed except at the old price. There is still a good demand for worsted cloths and fine chevots.

KIRKCALDY.—For many months, the important textile industries here have been in a very satisfactory position. There is no diminution in the general activity which has prevailed for such a length of time. The spring season, during which a large number of marriages take place, is usually a good one for the linen, floor-cloth, and linoleum trades. The present is no exception to the rule, and it is satisfactory to be able to report that the Kirkcaldy firms engaged in the production of the above-mentioned goods have capital orders on hand. Several of the establishments are being extended, and that is always a convincing proof of good business.

DUNDEE.—The feeling at present among the millowners is that the demand for an increase in wages has been practically abandoned by the operatives themselves. A manufacturer recently said he knew from the first that there was no chance of the wages being advanced. There were not 40,000 people engaged in the textile industry in any part of the world who were paid as much in wages as the Dundee mill operatives, and it was quite a dream for them to suppose that the wages could be increased. It was true that there was great necessity for the conditions of labor in the mills of Dundee being revolutionized, but that was a matter entirely in the hands of the workers themselves. The half-time system produced a crop of halfins who were disappointed at not getting men's wages, though they knew that was impossible. His impression was that power-loom weaving was the means by which these men might look for any improvement in their position. He suggested that they should at once apply themselves to learning this, pointing out that in Calcutta the greater part of the steam-loom weaving was undertaken by men and not by women. In this department of the industry the weavers were making from 15s. to £1 per week, which was the fair average wage of a working man, and there was no doubt it was in this branch that they would ultimately secure a remedy for many of the evils which at present existed in the mills.

BELFAST.—The apron and pinafore trades are profitably busy. The factories continue to be fully engaged to the extent of the productive power, mainly on orders for the English season trade. Repeat orders are coming to hand satisfactorily, and notwithstanding the increased number of machines now at work, no difficulty is experienced in keeping all regularly employed. In some cases, indeed, a much larger business might be done with more machinery, if a larger number of skilled workers were available. The trade in union holland—and in a lesser degree all linen holland—aprons continue to increase, and in several of the leading factories its growth this season has prevented the taking up of some other classes usually in demand for the spring trade. The cotton holland

apron trade is almost dead, and white crocydon aprons are in more limited demand than in former seasons. Pink and fancy aprons are in good request, but the union holland demand above alluded to has prevented these branches being worked to any considerable extent this season in some of the largest factories here. The large demand of last season for woven colored cotton aprons has not repeated itself this year in anything approaching the same magnitude, but neatly-got-up garments made from several qualities of dyed cottons are selling freely. Belfast seems to be attracting a rapidly increasing proportion of the linen and union apron business. In the other making-up branches business is increasing, notably in the shirt and collar trades, as compared with last year. Business in the shirt factories continues to be in an active condition. Early spring deliveries have been completed, but further deliveries already arranged for and fresh repeats arriving keep the hands in full employment. White shirts are selling in still increasing quantities, and French print shirts are still being ordered in moderate quantities for the provincial trade. In the coarser end the main demand is still for grandrill shirts of various qualities. The principal factories are now completing their arrangements for woolen goods for the coming winter. In the collar and front trade there is an improving demand for collars made from the finer sets of white linens; collars and fronts made from medium sets of bleached power-loom linens are also in brisk request. Bleached unions are being extensively cut up for low-priced fronts, as well as for linings and fittings generally, and complaints are still occasionally heard that garments having one portion made of all linen, and the remainder of union or all cotton, have "warranted all pure linen" stamped on the all linen portion, "the same with intent to deceive." The natural inference of the ultimate purchaser—the consumer—will be that the entire article is composed of pure linen only, even if no deception be practised on any section of the trade through whose hands it may pass.

DEATH OF LADY MOUNT-STEPHEN.

Lady Mount-Stephen died on the 10th inst., succumbing to the painful operation she recently underwent. The sad event causes widespread regret in society, where Lord and Lady Mount-Stephen were very much esteemed. Since they came from Montreal to make their home in London they have entertained lavishly, and Lady Mount-Stephen's parlors were frequented by the men and women most esteemed in London society. The late Lady Mount-Stephen, nee Annie Charlotte Kane, was born in England, her father being the late Mr. Benjamin Kane. In 1853 she was married in England to Mr. George Stephen, now Lord Mount-Stephen. Until about five years ago she lived almost continuously in Montreal from the time of her marriage. She had no children of her own, but Lady Northcote, one of the most distinguished ornaments of London society, was her adopted daughter. Deceased was of a very kindly disposition, contributed generously to public charities, and endeared herself to many people by kindly acts of unostentatious generosity. Lord Mount-Stephen, who was formerly in the dry goods business in Montreal, is known all over the world through his connection with the C. P. R. and other undertakings of magnitude and success.

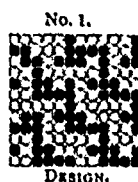
DEATH OF JAMES WATSON.

The death of James Watson, Hamilton, will be learned with much regret in the textile trades, among which he was well and widely known. Mr. Watson passed away on the 8th April, at his residence, Duke street, Hamilton, after an illness of five months. He had suffered from Bright's disease for some years, but latterly it took a severe form and he was confined to bed during the period mentioned. The deceased was born in Glasgow, Scotland, in 1831, his father being manager of the Bank of Scotland in that city. He came to Canada in 1857, and lived in Montreal for a time, after which he came to Hamilton, and was connected with the late Hon. Isaac Buchanan's business. He subsequently became proprietor of the Ancaster Knitting Company, in Ancaster, and when the factory

was burned down he organized the Strathroy Knitting Company, of this city, which was also burnt down a few years ago. Since that he had been manager of the Hamilton Powder Company's business here.

In an obituary notice the *Spectator* says he was a prominent Conservative and took a warm interest in politics. He was also connected with several charitable and benevolent institutions, and was a past president of the Y. M. C. A. and the Hamilton auxiliary of the Bible Society, and an elder of St. Paul's Presbyterian church. After the burning of the Strathroy Knitting Co's premises three or four years ago, Mr. Watson withdrew from the knitting trade, but his two sons, who had had a thorough training in the business, started a new factory on their own account, and have well maintained the reputation their father had gained in the trade. Mr. Watson had a social, cheerful disposition, and was a good writer and debater.

Textile Design



No. 1.

DESIGN.

Warp:

- 2 Black worsted, 2/40.
- 1 " woolen, 29 skeins.
- 2 " worsted.
- 1 " woolen
- 2 Brown worsted.
- 1 " woolen.
- 2 " worsted.
- 1 " woolen.

12 ends and picks.

5,040 ends.

7/4 picks per inch.

6 ends in each split.

12's reed.

70 inches wide in the loom.

56 " when finished.

No. 2.



DESIGN.

Warp:

- 1 Black, self twist, 12 skeins.
- 1 Olive, " " "
- 1 Black and Crimson, " "
- 1 Black, self twist, " "
- 1 Olive, " " "
- 1 Olive and Orange, " "

6 ends.

2,100 ends.

35 picks per inch.

3 ends in each split,

10's reed.

70 in. wide in the loom,

56 " when finished,

Woft:

- 1 Black, self twist, 12 skeins.
- 1 Brown, " " "
- 1 Black and Green, " " "

3 picks.

No. 3.



DESIGN.

Warp:

- 1 Black worsted, 2/50.
- 1 Brown " " "
- 1 Black back, 21 skeins.
- 1 Brown " 2/50.
- 1 Black " " "
- 1 Back, 21 skeins.
- 2 Black back, 2/50.
- 1 Back.

Repeat to 46 ends and picks.

Instead of Blue and Orange silk place Crimson and Green.

5,474 ends.

100 picks per inch.

3 dent with 6 ends.

1 " 5 "

14's reed.

68 inches wide in the loom

56 " when finished.

- 1 Blue silk.
- 1 Back.
- 1 Orange silk
- 1 Back.
- 1 Back.
- 2 Black.
- 1 Back.
- 2 Black.
- 1 Back.

The aggregate catch of the Newfoundland sealing fleet is now placed at 150,000 seals, an unusually low figure. Further arrivals of steamers with moderate catches have brought the number up to the figure named, a previous estimate having been 120,000.

CALIFORNIAN HEMP.

EDITOR CANADIAN JOURNAL OF FABRICS.

SIR,—I have to thank you for your courtesy in sending me copies of your valued journal for January, February and March, which I have read with interest. Experiments made here for two years past have conclusively demonstrated that we can produce magnificent crops of Japanese hemp from Kentucky grown Asiatic seed. The plant matures in sixty days, when it attains a height of ten feet, and in ninety days we raise it fifteen feet high. The fiber has been found in all respects equal to the best Kentucky, and a start has been made to produce it in commercial quantities. For the first crop some 100 acres or so are being planted for fiber and seed, and we propose to largely increase the acreage for the second crop (we can raise two crops annually here) in June. Samples of the fiber we have produced have attracted much attention in the United Kingdom, and orders are assured for large quantities at top prices. If it would interest you to learn more about our operations I shall be glad to furnish you with information from time to time; meanwhile, an occasional copy of your journal will be welcome, and assist us in developing our new industry.

Yours very truly,

SIDNEY E. MELTZER.

Felix Fremerey Decorticator Co., Bakersfield, Cal.

WASTE IN WINDING.

Knitters are frequently blamed for much waste they are not responsible for. It is noticed that there are two or three bobbins in the waste box not quite empty. Or that there are several bobbins placed on one side, as if the knitter had decided not to use them. Bobbins on which there may be an ounce or two of good yarn and a defect are pointed out, explaining why the bobbin has been taken down before empty. Usually this defect consists in poor winding. In fact, the winding may have been done so badly that the yarn absolutely refuses to wind off. In some mills the knitters are fined for having bobbins in this shape about their machines. That is, they are expected to run the bobbins down until every yard of yarn is wound off, regardless of the conditions. But it would seem as if it were the duty of the foreman and the mill manager to observe the cause of these half empty bobbins. It is not always the knitters' fault, as may be noticed by a little observation. There are a great many reasons why the knitters cannot run the bobbins until they are empty.

The chief reason why bobbins of yarn are not run on the knitting machine until the last yard has been wound off, is because of inferior winding. A bobbin may look all right when handed to the knitter, but she knows too well that about one out of ten bobbins is not so good as it looks. The defect in the bobbin may be wholly concealed. For instance, a bobbin may be symmetrically built, full and substantial looking. One might believe it to be perfect. The knitter ties it on her machine, and all runs well until the yarn gets off down to a point near the head, when suddenly the thread breaks, the work runs off the needle, and time is lost in fixing things up again, and waste is made. The cause is a piece of waste on the yarns. When this waste passed through the winder's hands she should have removed it.

Again, some winders start the thread on to the bobbins wrong very frequently, and when the thread is about run off the yarn snaps, or pulls the bobbin up, and trouble occurs for the knitter again. Again, the yarns are sometimes run over the head of the bobbin. It would be impossible for any knitter to empty a bobbin in such shape. She can run the yarn off partially, but must then remove the bobbin from the machine. For such waste as this the winders must be blamed, not the knitter. When the yarns are knit direct from the mule bobbins the spinners are to blame.

Knickerbocker and various kinds of two-ply yarns are now used in certain lines of fancy knit goods. The knitter is expected to empty the bobbins of these yarns particularly, as they are costly, and no waste must be made. How can a knitter run down a bobbin when the yarn turns out to be minus one strand near the bottom? The double and twisting machines frequently miss a

strand, and in such case a single thread is made, and the knitter is the first to see it. If she knits it in, a defect is made in the goods. If she doesn't there will be waste yarn left on the bobbin. So long as the two and three-ply yarns are kept whole on the bobbins, the knitter can knit them. If a strand or two is gone, however, she must not be blamed for tossing the bobbin into her waste box.

Split, broken and warped bobbins cause a great deal of bother to the knitters and produce considerable waste. If a bobbin has a split end, a piece chopped out of its nose, or is cracked, as a result of having been stepped upon, it then may work all right in either the spinning or the winding room, but when it gets into the knitting department, where the thread has to circle around the end of the bobbin at every turn of the knitting machine, there is likely to be bother, for the thread will catch in the crack. If the thread catches in this manner, it will break off, and the knitter will have to take the bobbin from the feed and place it one side. Again, we have the broken bobbin in which the little part of the end left is so sharp that the thread is cut off so that no knitter can run it down.

Again, bobbins are often split in the head. The threads catch in the split and break. Thus it is seen that knitters are not responsible for much waste turned out weekly in our mills. If there is a reformation in the winding department, there will be a decided falling off in waste in the knitting room.

LITERARY NOTES.

The *Warehouseman and Draper*, London, presented a more than usually interesting and attractive appearance in its issue of March 21st. This spring special number contained many good things, and the hints and pointers on the coming fashions are valuable to the trade, not only in London, but all over the world, to every corner of which it penetrates.

The *Winnipeg Commercial* attracts favorable notice to its city and province by issuing an eighty-page special, which is handsomely illustrated with views of the chief buildings and points of interest in Manitoba and the Great West generally.

The *Wool and Cotton Reporter* celebrated its ninth anniversary this month by giving its subscribers a double number, containing its history and the interior and exterior views of its publishing house in Boston.

Those who do not know W. S. Taggart, the author of a new book on cotton spinning which has just been placed on the market, will not hesitate, nevertheless, to buy the book, when we say that it is made up of a series of papers which Mr. Taggart wrote for the *Textile Mercury*, Manchester, Eng., and which have appeared from time to time in that well known publication. The illustrations are numerous, and the get up of the book is first-class in every way. Cotton Spinning, W. S. Taggart, MacMillan & Co., London and New York. Price, \$1.75.

We have received a catalogue of grinding machinery from Dronsfield Bros, Ltd., Oldham, England, which is a model of neatness and convenience. The extensive adoption of the revolving flat card, and the necessity of having the flats perfectly ground, has led this firm to pay considerable attention to the matter. In the new patent grinding frame for revolving flats, they have provided all the conditions necessary for obtaining absolute uniformity in the grinding of each flat, whereby the carding has been much improved. The patent emery wheel grinder has been improved, a spring fork being now used by which the wear on the fork and screw is greatly reduced; it is also fitted with a neat and perfectly silent differential motion, dispensing with the use of one driving strap. The patent card-mounting machine is fitted with an improved tension indicator, and other improvements. They have also introduced a grinding frame for the rollers of cloth-raising machines. They say that grooved covering for grinding rollers is now almost universally adopted, thus proving the great advantage of this form of grinding surface, and by which the best results in grinding are obtained.

The *Century* plays two of its best cards in the April number, namely, Cole and Castaigne, the frontispiece being a beautiful engraving by Cole after George De Forest Brush's painting, entitled "Mother and Child," and Mr. Castaigne furnishing the illustrations

for a timely article by Prof. Allan Marquand, of Princeton, on "The Old Olympic Games," apropos of the revival of the Olympic festival at Athens. Mr. Castaigne's reproductions, carefully studied from authentic artistic sources, have all the vigor of drawings from the life, and will increase his popular reputation as a creator of intellectual and beautiful art. Prof. Marquand's article is an entertaining popular account of the games, and will be of special interest at the present time. Prof. Sloane's "Napoleon" is particularly rich in illustrations. He treats of Napoleon as the assassin of nationality, of the Spanish campaign, and of the rise of Germany under the lead of Prussia. A notable article by Victor Louis Mason, an attaché of the War Department, is entitled "Four Lincoln Conspiracies," and makes record of the three attempts to murder and one to kidnap, and includes new particulars of the flight and capture of the assassin. The illustrations are chiefly from archives of the War Department (for the most part unpublished), and comprise photographs of the conspirators in irons, documents in Booth's handwriting, scenes along the route of his escape, etc. An amusing article on a subject of current interest is Mr. D. P. B. Conkling's article on "Japanese War Posters," with four illustrations. Mrs. Schuyler Van Rensselaer, author of "English Cathedrals," contributes a paper on "The Churches of Périgueux and Angoulême," with illustrations by Joseph Pennell, and the series of stories and sketches by the painter Vibert comes to a conclusion with three diverting examples, including a one-act comedy. There is a liberal instalment of "Sir George Tressady," Mrs. Humphry Ward's novel, which carries the story into very interesting fields, including an English house-party, with delightful glimpses of country life.

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.

Albert, N.W.T., is thinking about a woolen mill.

Brantford is after a carpet factory which will employ 150 hands.

James Hamilton, of the Stillman, N.S., woolen mills, is willing to sell his mill or take a partner.

Smith Bros. will not start a knitting mill at North Bay, Ont., as was reported in several papers.

Samuel Reid, woolen manufacturer, Ferguslea, Ont., has effected a compromise with his creditors.

The tarpaulin works, Preston, Ont., are very busy, having no less than 200 orders on the books, it is said.

Dalglish's woolen mills, Ottawa, were damaged to the extent of \$10,000 on March 26th. Insurance \$4,000.

Wylie & Shaw, blankets and coarse tweeds, Almonte, Ont., have closed down their mills, orders not being plentiful, it is said.

B. F. Brook & Son, of Listowel Woolen Mills, Listowel, Ont., have commenced the erection of a large addition to their store and mill office.

A. Morison, of the Markham woolen mills, has succeeded J. M. Masson as manager of the Hawthorne woolen mills, Carleton Place, Ont.

Dupont & Wilson, Catarqui street, Kingston, have their oil-cloth factory in operation. The machinery is largely of English manufacture.

A carpet company is inquiring as to what terms it can make with Sherbrooke, Que., it is said. The local papers say the firm in question is now located in Elora, Ont.

In consequence of the water being let out of the canal at Cornwall, Ont., on the 14th March, the paper mill, Globe mills, Express mills and Hodge's woolen mill closed down until the water is let in for the opening of navigation.

The plant of the Weston woolen mills which has been on the market for some months, has attracted a number of bidders.

James Lockhart, Son & Co., Toronto, have been appointed agents for the Hawthorne woolen mills, Carleton Place Ont.

George Woy, formerly head of the weaving department in the Lambton woolen mills, Lambton Mills, Ont., is now superintendent.

Messrs. Haigh & Theaker's woolen mill, Mount Albert, Ont., is again in full blast, and prospects are good for the coming season.

The members of the D. C. Mills Company's band, Magog, Que., held a sugar social, promenade concert and dance in the town hall on 13th inst.

The foremen and heads of all departments in the Dominion Cotton Company's mill, Kingston, held their annual dinner at the Thousand Island House, March 23rd.

Andrew Gissler, Mildmay, Ont., has for sale or rent one set woolen mill 48-inch cards, brick building, 3 1/2 stories, good water power, custom and wholesale trade.

Samuel Mann, contractor, of Montreal, was in Magog, Que., recently, on business with the D.C.M. Co. His visit had reference to important improvements to be made this summer.

The Dominion Dyewood and Chemical Co., Toronto, have lately fitted up a laboratory specially for analyzing soaps, oils, &c., in connection with their laboratory for dyeing and testing colors.

The newly organized "Dominion Cotton Mills Co.'s Band," Magog, Que., made their debut recently, and considering the short time they have been practising they did remarkably well, according to our exchanges.

The Winger Woolen and Felt Company, of Elmira, Ont., are applying for incorporation, with a capital stock of \$25,000, to acquire the business of H. & J. B. Winger & Co., and to make woolen and felt goods, etc.

A large warehouse of the Paton Manufacturing Company, Sherbrooke, Que., was completely destroyed by fire on April 8th. The building was a wooden structure, used as a storage for waste, shoddy, oils, etc., and was nearly empty at the time.

The St. Stephen and Milltown Railway Company have decided to extend their line from its present terminus to the cotton mill, and it is expected that the work of construction will be begun at once, Joseph McVay having been awarded the contract.

At the annual meeting of the Dominion Cotton Mills Company in Montreal lately, the following directors were elected: A. F. Gault, president, Jacques Grenier, vice-president, David Morrice, S. H. Ewing, Hon. J. O. Villeneuve, C. E. Gault, and D. Morrice, jr.

The Talbot, Cockroft & Harvey Carpet Co., Ltd., of Elora, Ont., will be the chartered name and style of this well-known firm. Capital, \$99,000; directors, William Talbot, Emmet Cockroft and James Harvey, of Elora, C. H. Riches, Toronto, and J. Harvey, Hamilton.

J. A. Hunter has received a preliminary order for 5,000 pounds yarn—spot cash—from a millionaire wholesale dry goods firm in Toronto. This speaks well for the Durham yarns, which promise to be better than ever under the supervision of a Leeds, England, spinner.—*Grey Review*.

The Montreal Toilet Supply Co., Ltd., applies for incorporation to carry on a laundry business in Montreal, and manufacture shirts, etc. Capital, \$25,000; applicants, S. Lachapelle, M.D., M.P., A. A. Bernard, M.D., A. Delorme, E. Hebert, A. C. A. Bissonnette, of St. Henri, Que., L. J. Smith, J. E. Schultze, L. Rubinstein, J. D. Miller, Montreal; J. G. Brock, Lachine.

R. Schofield, manufacturer of power knitting machines, 14 Court street, Toronto, is getting out a handsome illustrated catalogue of the machines he makes and handles. The catalogue will be in the hands of the trade in a week or two. Mr. Schofield is much pleased at the reception his work has met with from the trade since he began business in this line a year ago. Work that used to go to Philadelphia is now done in Toronto.

Cole & Pedder sold one of their patent carbonizers to the Brodie Co., of Hespeler, lately

The Sarnia woolen mills were recently offered for sale, but were withdrawn on request of the Smith estate.

James Porrit & Co., woolen waste, etc., Port Elmsley, Ont., have assigned to E. B. Sparham, Smith's Falls, Ont.

Jas. H. Wylie's flannel factory, Almonte, Ont.,—the Elmsdale mill—has been closed for a week lately while a new Wheelock engine was being put in

Thos. Douglas, who has held a position in a woolen mill in Oldtown, Me., for some time, has assumed the superintendency of Teskey's woolen mills at Appleton, Ont.

D. M. Fraser's knitting mill, Almonte, Ont., is filled with orders, and the employees are working overtime. It will keep the mill hard at it till September to catch up with orders now in.

Recently a small fire broke out in the picker-room of the Lambton woolen mill. With the aid of the Babcock extinguishers and the chemical engine, the flames were subdued with a loss of a few bales of waste and a little damage to the picker.

According to a Guelph paper, A. W. Brodie's shoddy mill at Hespeler is nearing completion. The boiler is in place, and the rest of the machinery and appliances will be put in within two or three weeks. Employment will be given to twenty-five or thirty hands. Both the factories are busy, employing their full number of hands. The spinning and carding departments of Brodie's mill are still running all night.

W. Sauve, a foreman of the spinning department of the Stormont mill, Cornwall, Ont., was before the police magistrate lately charged with assaulting an employee of the department, a boy named Lalonde. After hearing the evidence the case was dismissed. It appears that Lalonde was very hard to manage, and on this occasion was away from his place and Sauve pushed or slapped him.

Commenting on the resolution passed by Wm. Parks & Sons, Ltd., St. John's, at the annual meeting, which looks towards the production of printed cottons, the *Textile Mercury* says: "This is an ingenious way of competing with the great Canadian cotton syndicates without the expense of laying down plant, although, from the wording of the resolution, the shareholders of Messrs. Parks & Sons do not appear unwilling to enter the print trade themselves."

T. A. Code has about sixty hands employed in his knitting mill here, and is turning out great quantities of hosiery, under-clothing, lumbermen's socks, "sweaters," etc. Most of his machinery is of the very latest design and make; and it is extremely interesting to watch some of these ingeniously constructed machines do their work. The sweaters turned out in this factory are made of fine wool, beautifully carded, and are almost exquisite in their texture and make-up. Mr. Code is constantly making improvements in the quality and efficacy of the machinery in the factory, and also in the running of things so as to get the best results from the machine and hand labor employed.—*Perth Courier*.

Last May a stranger named Miller, who proved to be a mere adventurer, went to Burritt's Rapids and purchased a carding mill from Mr. Pettapiece, of that place, promising to make additions and improvements to the extent of \$10,000. He checked it for some time, employing a number of men and borrowing money, but never paying the men, and then stopped. Mr. Pettapiece profited to the extent of the improvements, as the property reverted to him, and the men who worked at the improvements are suing him for their wages. A Brockville concern is said to be in for a \$450 water-wheel, and the total indebtedness is probably \$3,000. Mr. Pettapiece contends that the old mill was good enough for all the business he ever did, without costly improvements.—*Almonte Gazette*

Death has made havoc at the Speedsville woolen mills, near Preston, Ont., during the past six months. The proprietor, S. C. Martin, died on the 29th November last, as chronicled in this journal, and, on the 16th February, James Hunt, the foreman and

practical manager for many years, followed him. The writer saw Mr. Hunt only a couple of weeks before his death, in apparently excellent health. Mr. Hunt was concerned, with his brother John, in the operation of the first power-loom linen mill in Canada. Reminiscences of this mill were given by the latter in the *CANADIAN JOURNAL OF FABRICS* some years ago. The mill was situated in the building now occupied by Ferguson & Pattinson's woolen mill near Preston, as one of the promoters was George Stephen, now Lord Mount-Stephen. The mill got into operation towards the close of the American civil war, when prices for cotton and linen goods were enormously high. It was believed by the promoters of this first Canadian linen mill that there was a fortune in the business, and so there would have been had the war continued, but when peace was restored prices dropped and cotton again became king. Had the late Mr. Hunt's advice been followed and the company confined itself to bagging and coarse goods, with linseed oil and cake, it might have been running to-day, but George Stephen and Andrew Elliott, who had the principal capital in the concern, were for making fine goods, and the chief drop in prices was on these lines. The result was that soon after the war the company decided to sell off their machinery at such prices as they could get, some of it going to the States and some back to England. While the mill ran they produced good linen fabrics, and Mr. Hunt mentioned that they took the gold medal at an exhibition held in Montreal in those days. Mr. Hunt was the active superintendent of the linen mill. We may mention that the Speedsville is to be disposed of by tender this month. The business is in the meantime carried on by John W. Martin.

FABRIC ITEMS.

E. A. Meller is opening a dry goods and gents' furnishing store at Middleton, Nova Scotia.

Barnstead & Southerland, dry goods, Halifax, suffered a fire loss of \$40,000 on stock and \$10,000 on building on the 4th inst.

The *Maritime Merchant* is advocating the establishment in Halifax of a wholesale hat, cap, and gentlemen's furnishing house

It has been sworn to in court in Toronto that a woman received 75 cents per dozen for making overalls, and supplied her own thread at that.

E. F. Caulombe, tailor, Quebec, is reported in difficulties. He finds he owes some \$2,200, and about his only assets are said to be a few hundred dollars in book accounts.

Recently A. J. McLean, merchant tailor, Toronto, offered creditors 40 cents on the dollar, but they refused to accept this. Now he assigns, with liabilities about \$1,000.

Isaac Coyne, dry goods, Ingersoll, Ont., assigned in 1887, liabilities \$30,000. Since then the business has been carried on without success by his female relatives, and a third assignment has just been made.

Wilkie Collins, dealer in dry goods, etc., Toronto, for nearly twenty years, at one time occupied a good position, but invested considerable money in real estate a few years ago. These investments cramped him badly, and lately he was obliged to give a chattel mortgage for nearly \$20,000. This has been foreclosed.

Hope Bros. & Patterson, Toronto, dealers in men's furnishings, were trying to arrange an extension of time, but failing to do so they assigned to E. R. C. Clarkson, with liabilities of \$20,000. Their nominal assets exceed this sum by \$8,000. Stock is now being taken, and an offer of 65 per cent. will be made to the creditors.

The Salvation Army tailoring branch has tendered for the contract for firemen's clothing in Toronto. An evening paper says, "there is some question as to whether such a tender should be received, it being thought that to introduce such an element of competition would be unfair to the regular trade." Nothing can be more unfair than to have people beg money for alleged charities and then have them employ the capital so obtained to compete with legitimate business.

Pratt & Watkins, dry goods, Hamilton, Ont., celebrated their 21st anniversary on March 17th by a banquet, at which the eighty-five employees and a number of Hamilton's prominent citizens sat down.

Fraser & Crawford, for many years in the employment of R. Walker & Sons, Toronto, have severed their connection with that firm, and have opened a tailoring establishment at No. 221 Xonge street.

The Jas. McDougall & Co. stock in Montreal was sold at auction; the dry goods, imported woollens, \$9,548.06, and Canadian, \$5,594.83, tailors' trimmings, \$8,671.99, at 75¼ cents on the dollar, to Cyrille Laurier.

After being in business twenty three years, S. A. Hyman, hatter and ferrier, Belleville, Ont., has assigned. His assets are placed at \$15,000, which are said to be considerably in advance of his liabilities. B. Levin, Montreal, is the principal creditor.

Frank Lauder, who is a brother-in-law of A. F. Robb, of the Galt Knitting Co., was presented with an address and a handsome souvenir by the employees of Knox, Morgan & Co., wholesale dry goods, Hamilton, Ont., before taking a position in Detroit.

Twelve months or more ago W. J. Woolard left Toronto, where he had been a clerk, with \$1,000 cash, and purchased the men's furnishings stock of J. Apple & Co., Berlin, Ont. But owing to strong competition, and possibly other circumstances, he has assigned.

Nicholas L. Garland, maker of clothing, has issued a writ against John Calder & Co., of Hamilton, claiming damages for the alleged infringement of a patent which Mr. Garland claims to own. The patent is on a machine used in connection with the manufacture of overalls.

R. T. Maxwell opened a men's furnishing and clothing store in Sarnia in 1887, in partnership with one English, under the style of Maxwell & English. In a few years they dissolved, and the former continued. Now he assigns with liabilities of \$16,000 principally due in Toronto.

The master tailors of Toronto refused to appear before the Board of Conciliation who were to have settled the tailors' strike. The board was: R. C. Clute, Q.C., chairman, and W. D. Dumble, Police Magistrate of Peterboro', and A. F. Jury, of Toronto; D. J. O'Donoghue, secretary.

In or about January, 1890, W. E. Mayhew assigned as a dry goods dealer in Hamilton, Ont. Being unable to make a settlement with creditors the stock was sold, his wife being the purchaser. Since then she has continued the business under the style of W. J. Mayhew & Co., but she has made no progress, and now assigns, with liabilities of about \$10,000.

Early in 1892, E. D. Gough left Toronto and opened a clothing store in Belleville, Ont., having besides this branch stores at Brantford and Kingston. In about a year thereafter he became involved, and in May, 1893, arranged a settlement with creditors at 70 per cent. A statement of his affairs is being prepared for the consideration of creditors, who are principally in Montreal.

In 1879 Robert Stanley began dry goods business in St. Catharines, Ont. Nine years later he was obliged to ask his creditors for relief, and they wrote 25 per cent. off their claims. Lately several bankrupt stocks have depressed the general trade of St. Kitts very much, and Mr. S. found it necessary to mortgage his stock in favor of a millinery house in Toronto for \$5,000, which caused the issue of a writ and an assignment.

The stock of Relyea & Co., dry goods, Cornwall, Ont., who assigned to J. P. Langley, of Toronto, has been sold at 30 cents on the dollar. The stock was originally sold at auction at 47 cents on the dollar, and was purchased by George Rowan, of Guelph, Ont. The latter, however, refused to carry out the sale, on the grounds that there had been misrepresentation in regard to the condition of the stock, and he has entered action against the assignee for the return of his deposit and also for damages. When Mr. Rowan refused the stock it was put up again at auction and withdrawn, as only 23½ cents was bid for it. Now it has been disposed of at 30 cents on the dollar.

It is announced that the tailoring business lately carried on by B. Saunders, Jr., at 94 King Street West, and by Crean & Rowan, 121 King Street West, have been amalgamated, and will be carried on at 121 King Street West, Rossin House Block, Toronto, under the style Saunders & Rowan.

What to do with the fake auction and the bankrupt sale is a live question in most small towns. The *Dry Goods Economist* reports that the business men of Auburn, Ind., have made an agreement with the local press not to advertise or mention in any way the transient trader and the vendor of bankrupt stocks. This is a step in the right direction.

What might fairly be referred to as advertising gone mad, is described in the *Weekly Review*, Portage la Prairie, of March 19th, as follows. "Arrangements have been completed between D. S. Macdonald and the T. A. Garland Company, whereby customers of the latter can be driven from their homes to the store and return. Telephone either Nos. 120, 108 or 6, and a hack will call around at the hour named."

The shoddy clothing fakir has been "doing up" preachers in Western Ontario. He caught a large number of them too. It was the old game—represented first-class English house—they could get the stuff made up at low rates by a tailor, whose name he gave—and was giving great bargains. The truth came out when some of the reverend gentlemen called on the tailor with their bundles, and were informed that the stuff for which \$14 had been paid was not worth \$5.

CHEMICALS AND DYESTUFFS.

Trade is dull and there will be little change in prices till the opening of navigation. The following are current quotations in Montreal.

Bleaching powder.....	\$ 2 25	to \$ 2 50
Bicarb soda.....	2 25	" 2 35
Sal soda.....	0 70	" 0 75
Carbolic acid, 1 lb. bottles.....	0 25	" 0 30
Caustic soda, 60°.....	1 90	" 2 00
Caustic soda, 70°.....	2 25	" 2 35
Chlorate of potash.....	0 13	" 0 18
Alum.....	1 40	" 1 50
Copperas.....	0 70	" 0 75
Sulphur flour.....	1 50	" 1 75
Sulphur roll.....	1 50	" 1 75
Sulphate of copper.....	4 75	" 5 50
White sugar of lead.....	0 07	" 0 08
Bich. potash.....	0 09½	" 0 10½
Sumac, Sicily, per ton.....	65 00	" 70 00
Soda ash, 48° to 58°.....	1 25	" 1 50
Chip logwood.....	2 00	" 2 10
Castor oil.....	0 07	" 0 08
Cocoonut oil.....	0 06½	" 0 07

A. KLIPSTEIN & COMP'Y

122 PEARL STREET, NEW YORK

Chemicals and Dyestuffs

ANILINE COLORS OF EVERY KIND

SPECIALTIES

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

Also GAUSTIC POTASH FOR WOOL SCOURING

WRIGHT & DALLYN, Agents - - HAMILTON, Ont.

PERSONAL.

L. Shinner, of Galt, has secured the position of machinist in the Brodie Mills, Hespeler, Ont.

Jas. A. Canlie, recently visited Almonte, Ontario, and other points where his textile interests are located.

Alfred Parker, New Toronto Wool Stock Co., has recently returned from a business trip to England.

It is announced with regret that J. A. Horsfall, of Horsfall Bros., McGill street, Montreal, died recently.

J. F. Morley, manager of the woolen mills, Waterloo, Ont., has gone on a business trip to various points in the United States.

Steven Coveney, formerly employed by the Hawthorne Woolen Co., Carleton Place, Ont., has taken a position in Arnprior, Ont.

Mrs. Cook, wife of E. Cook, proprietor of the St. Lawrence Woolen Mills, Gananoque, Ont., died recently from injuries resulting from a fall.

Victor Taylor, Ferris street east, met with an accident at the Hamilton Cotton Co.'s mill, Hamilton, Ont., on March 19th, by which one of his arms was broken.

J. Drynan, jr., had his hand very severely torn not long ago in the picker in D. M. Fraser's knitting mill, Almonte, Ont. The machine had to be taken apart to extricate him.

The position of overseer of the weave room in the St. Croix, Milltown, N.B. cotton mill, made vacant by Mr. Parker's retirement, has been filled by the appointment of Albion Gregory, and Orrin Morrison becomes second hand in the same department. These are worthy local young men, whose many friends are pleased to learn of their deserved promotion, say the local papers.

You Want a Canoe OR ROWBOAT



WE HAVE THEM

in all sizes, and at prices which will make you buy.

THE CANADIAN CANOE COMPANY, Ltd.

Box 107, PETERBOROUGH, ONTARIO.

Send stamp for Catalogue and mention this paper.

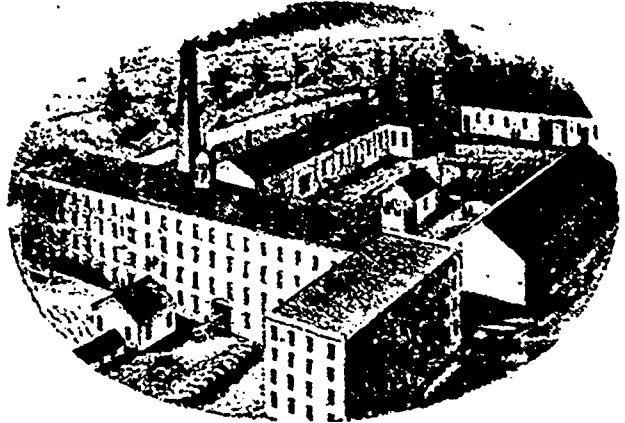
Geo. Wedge, late overseer of the spinning department in the Hawthorne Woolen Mills, Carleton Place, Ont., has taken a position across the line.

Mrs. A. Morrison, wife of the new manager of the Hawthorne Woolen Mills, Carleton Place, Ont., will reside in Lambton, Ont., instead of Markham for the present.

W. A. Locke, commercial traveller for E. A. Small & Co., wholesale clothiers, Montreal, fell under a street car at the corner of McGill and Notre Dame streets, on April 3rd, and died a day or two later from his injuries.

Alex. Pedan, Canadian representative of Mann, Byers & Co., Glasgow, has just returned from an extended visit to the British markets. Mr. Pedan is looking in excellent health after his trip, and reports the business conditions across the water as being much improved, since the ending of the labor difficulty in Glasgow.

Weston Woolen Mills



This valuable Seven-Set Mill, including 25 acres of Land, with 10 dwellings, etc., is now offered **FOR SALE**. It contains seven sets of 60-in manufacturing Cards, 2,500 Spindles (Tatham Mules), 45 Broad Looms, and all other machinery to match. It is advantageously situated on the banks of the Humber river, and has an excellent water power.

Weston is a suburb of Toronto, on the Main Lines of the Grand Trunk and Canadian Pacific Railways, having also an electric car service direct to Toronto.

As this fine property is offered at very reduced figures, an eminently favorable opportunity is afforded to intending purchasers.

I also have for sale, 1 set of 48-in. Cards, 2 sets of 60-in. Cards, 4 Tatham Mules, 20 Broad Looms, 2 English Gigs, 2 Chinchilla Machines, 3 60-in. Shoddy Cards, 2 Fulling Machines, 3 Shoddy Pickers, 1 Rag Duster, etc., etc.

GEORGE REID, 118 Duke St., Toronto.

Machinery Brushes

For Woolen and Flour Mills, Jewellers, Shoes, Breweries, Dairies, Platers, Foundries and all machinery work, old rollers rebbled.

FRANK WEHRLE & CO'Y

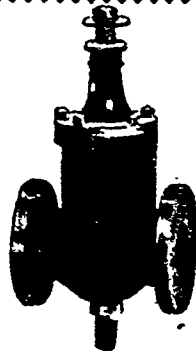
Brush Manufacturers,
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A Wheelman's Equipment is not complete without a

Rice Belt Cape!

These Capes can be worn as a belt, and can be changed to a Cape in one minute. Weight 11 ounces. Substitute for umbrella and overcoat.
Sold by all dealers. Agents,

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**GENERAL MERCHANTS AND
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Canadian Tweeds, Flannels, Dress Goods, Knitted
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J. CUPPER SOHN, Bartscheid, Germany.

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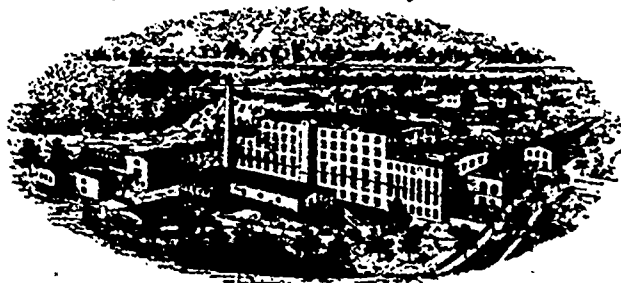
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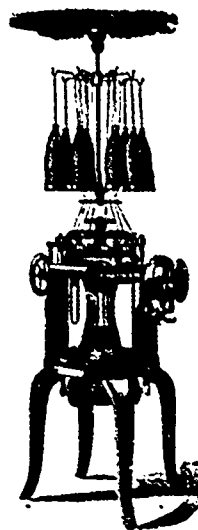
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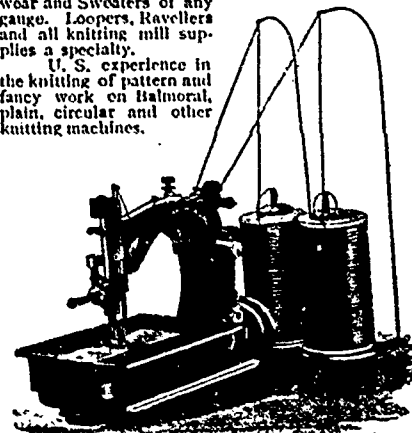
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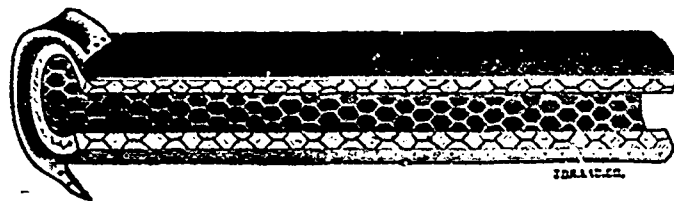
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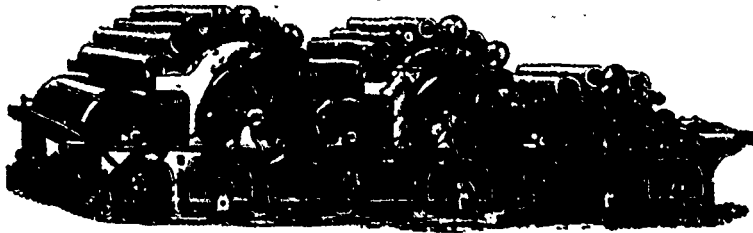
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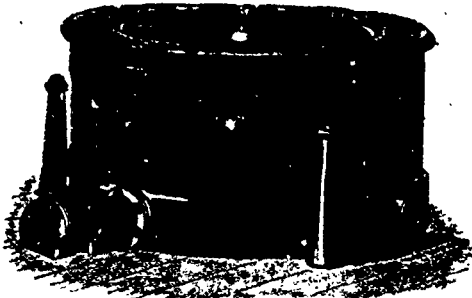
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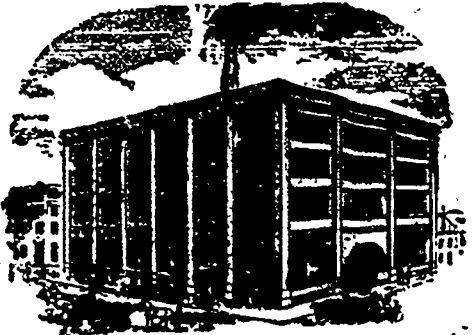
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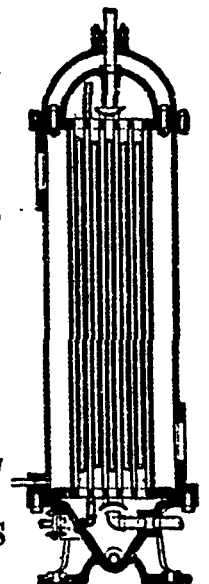
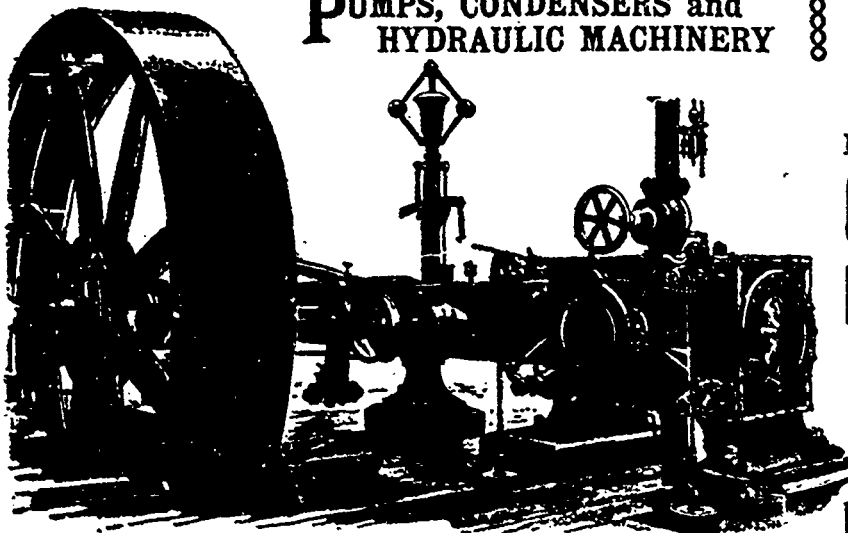
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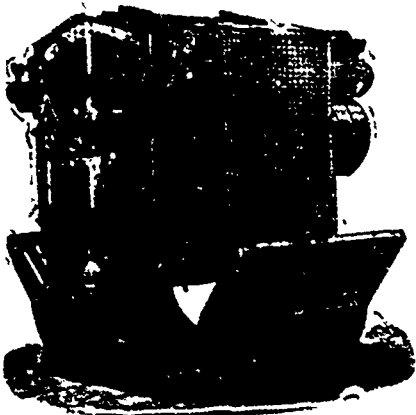
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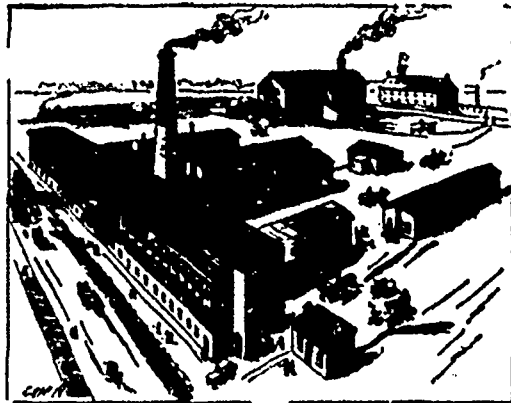
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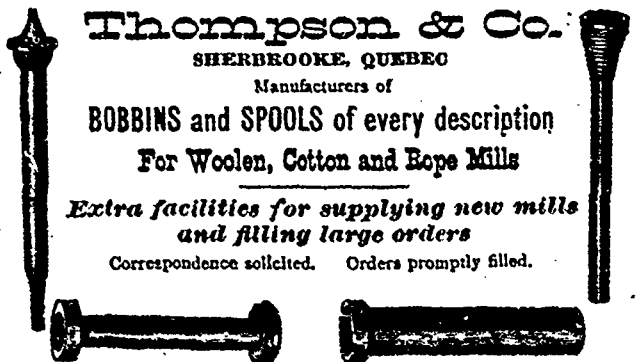
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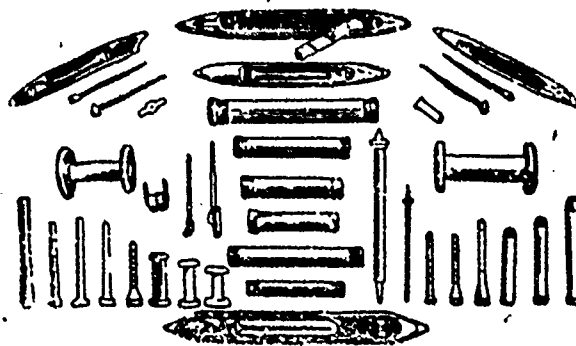
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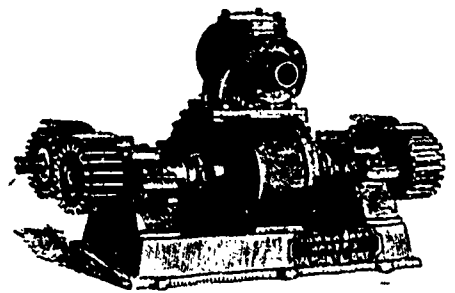


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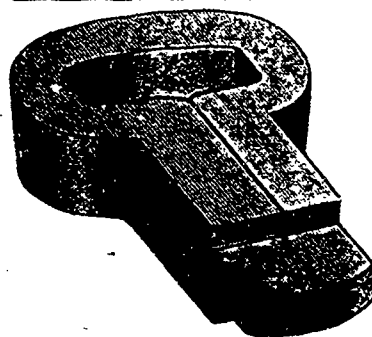
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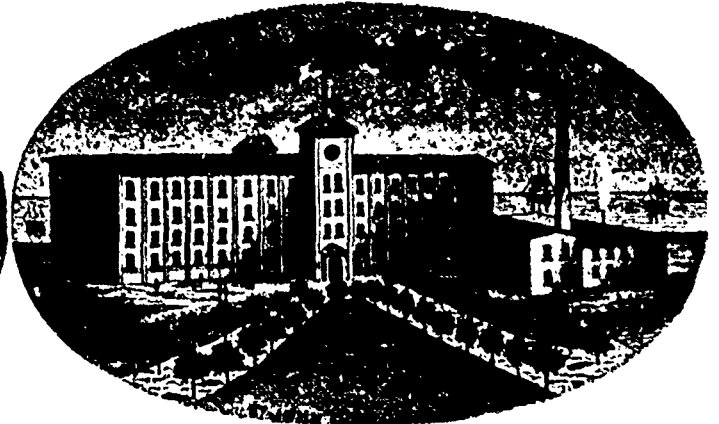
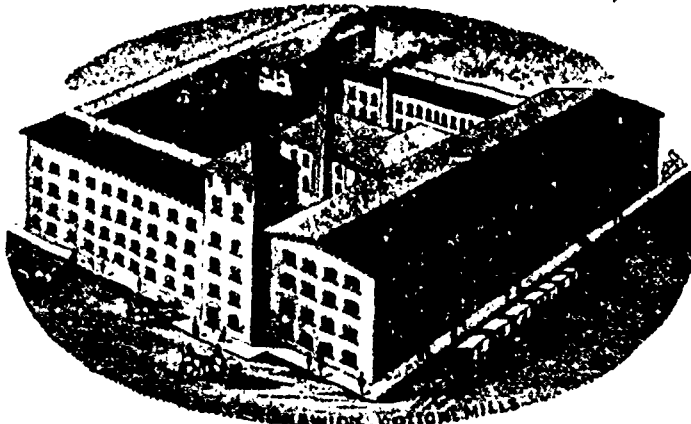
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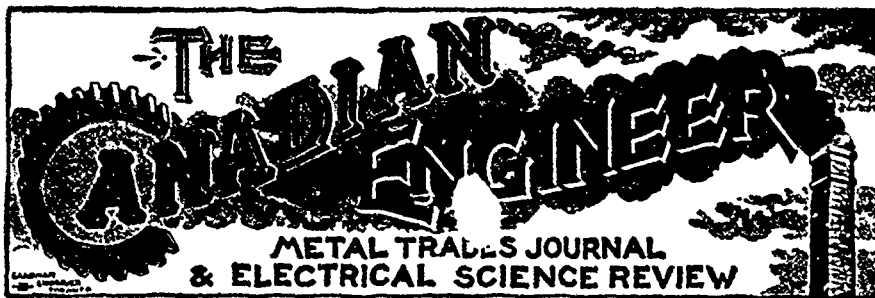


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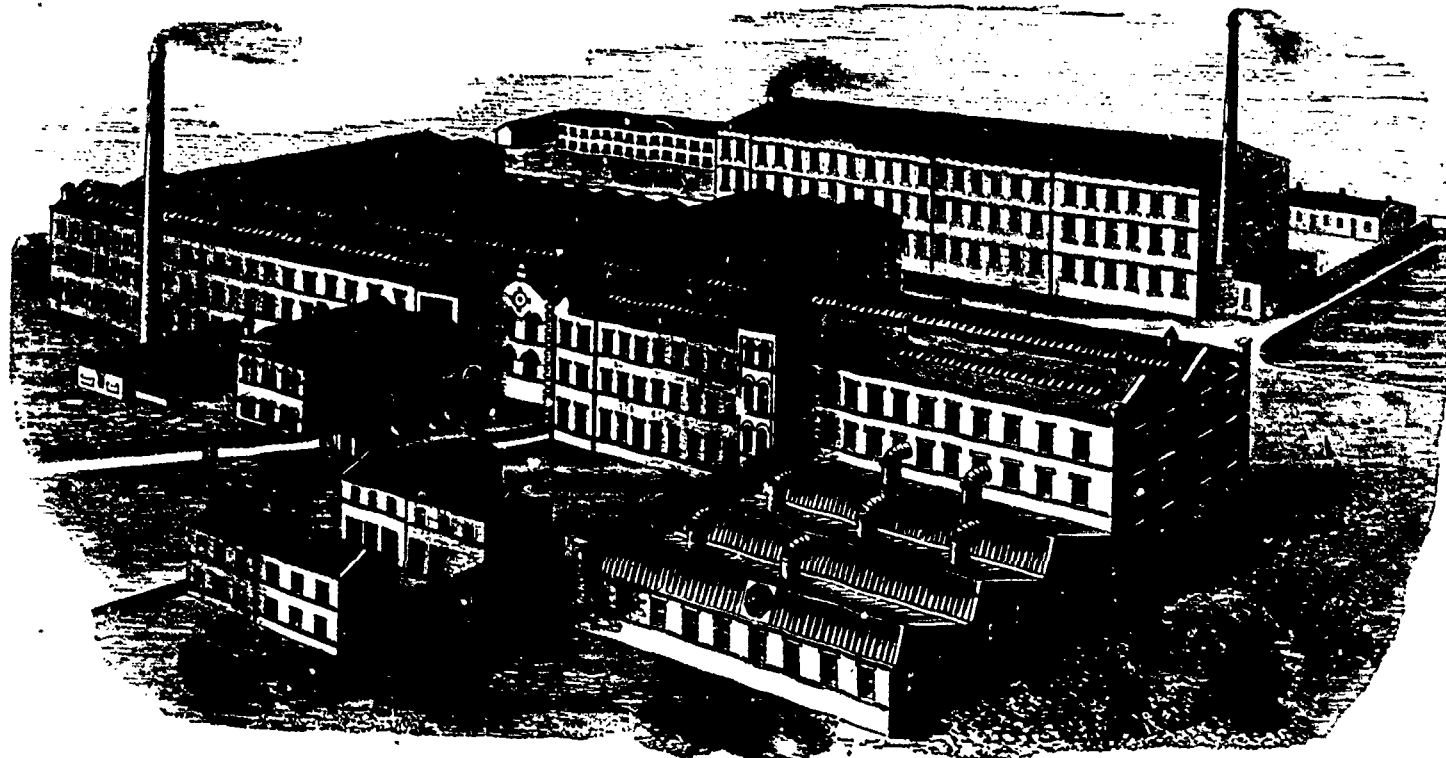
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Canadian Agent: GEORGE REID, 118 Duke Street, TORONTO

THE WOOL MARKET.

TORONTO.—The market is very dull, and prices somewhat easier. Little of the new clip is coming in unwashed, but it is too early yet to form any estimate of the clip as a whole. There is no fleece combing in the market, all having been shipped to the United States. We quote—Fleece clothing, 23 to 24c.; tub washed, 22 to 23c., unwashed, 11 to 12½c.

MONTREAL.—The market presents little of interest. Prices are fairly well maintained. Small lots of greasy Cape are changing hands at 14 to 15½c. B.A.'s are scarce, and fine grades are selling at 32c. No greasy Cape is expected for a month or two. Quotations are: Greasy Cape, 14 to 16c., Natal, 15 to 17c.; Canadian fleece, 22 to 25c., B.A., scoured, 27 to 35c. In Canada pulled wool, 22 to 23c. is quoted.

Reports from Manitoba and the North-West show that the sheep there have come through the winter in good condition, and are very healthy. Short, fine, North-West wool is quoted at 10½c.; medium fine, 11c., combing and clothing, 11½ to 13c.

TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the values, in sterling money, of the imports of textile interest to Canada, from Great Britain during February, 1895 and 1896, and the two months ending February, 1895 and 1896:

	Month of February.		Two months to February.	
	1895.	1896.	1895.	1896.
Raw wool.....	£ 307	£ 2,232	£ 493	£ 3,298
Cotton piece-goods	55,328	62,244	136,436	138,097
Jute piece-goods	9,421	13,046	17,904	26,586
Linen piece-goods.....	12,728	16,605	34,812	45,048
Silk, lace	3,202	1,001	11,860	3,117
" articles partly of....	2,797	3,438	5,192	8,020
Woolen fabrics	25,139	31,325	44,658	53,569
Worsted fabrics.....	59,264	68,665	114,555	127,213
Carpets	31,587	35,069	55,214	55,085
Apparel and slops.....	26,949	34,865	61,307	70,327
Haberdashery	16,715	18,985	31,876	39,397

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but when you want
MITTS or GLOVES in either
Buck or Saranac,
Kid or Mocha,
equal to any that are
made anywhere,
well, just you get our
prices.*

M. J. McDOUGALL,
KINGSTON, Ont.

G. S. JOHNSTON, Clarence st., Ottawa, has opened a departmental store.

The linen imports into Canada from Great Britain during the month ending 1st January, 1896, amounted to 1,839,100 yards, valued at £28,443 as against 1,337,200 yards, valued at £22,084 in the corresponding period of last year.

Method for Dyeing Naphtyl Blue Black N, pat.—Naphtyl Blue Black N, which is distinguished by its bright shade and similarity in appearance to logwood, both in reflected and transmitted light (overlook and underlook), has been generally adopted for the dyeing of knitting yarns and piece-goods in Europe. It showed the one defect that dyeings suffered when subjected to an extraordinarily severe potting or sponging process. Messrs. Cassella & Co. have succeeded in overcoming this defect by adding some sulphate of copper to the dyebath. The sulphate of copper can be added: 1st, when preparing the bath, in which case charge the dyebath with 1 per cent. oxalic acid and 8 per cent. acetic acid, add the dyestuff, then 2 per cent. sulphate of copper, enter the goods, bring slowly to the boil and work in the boiling bath until the latter is completely exhausted; 2nd, during the dyeing operation, in which case charge the dyebath as stated under No. 1, omitting the sulphate of copper, boil for half an hour and then add the latter; and 3rd, after dyeing, then dye as stated under No. 1, without the addition of sulphate of copper, 2 per cent. of which add as soon as the dyebath is exhausted and boil another half hour. By applying the first method the black obtained is a little lighter and bluer, whilst somewhat deeper if the third method is used. The dyebaths, no matter which of the three methods has been applied, can be used over again, subsequent lots only requiring an addition of 1½ per cent. sulphate of copper. Without the result being influenced by the addition of the sulphate of copper, the dyeing can be done simultaneously with Naphtyl Blue Black N, Formyl Violet, Cyanole extra, Acid Green, Tropæoline, and Fast Yellow S. or the dyeings of Naphtyl Blue Black N can be shaded in the dyebath with these products. If the goods are to be subjected to very severe sponging or potting, the quantity of sulphate of copper may be somewhat increased. The fastness to light of dyeings produced with Naphtyl Blue Black N by the above methods is excellent, and cannot be nearly equalled by any of the wool dyestuffs for black known in the market. About this dye W. J. Matheson & Co., Ltd., writes us:—"Since issuing our Bulletin No. 44, showing Naphtyl Blue Black N, treated with Chrome and Bluestone, we beg to state that we have been making experiments with a view of proving our Black of sufficient fastness, without this after-treatment, and are glad to be able to inform our customers that we have found our Naphtyl Blue Black N, without after-treatment, to be so fast that the addition of Chrome does not improve it in the least, but for such of our customers who desire an absolutely fast black in every respect, we still recommend the after-treatment with Bluestone. We shall be glad to send you a sample card showing 14 dyeings on several varieties of goods dyed without the after-treatment."

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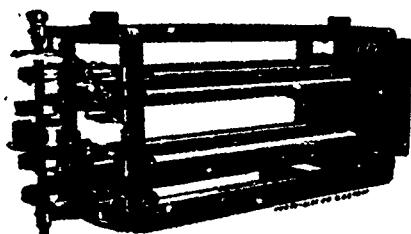
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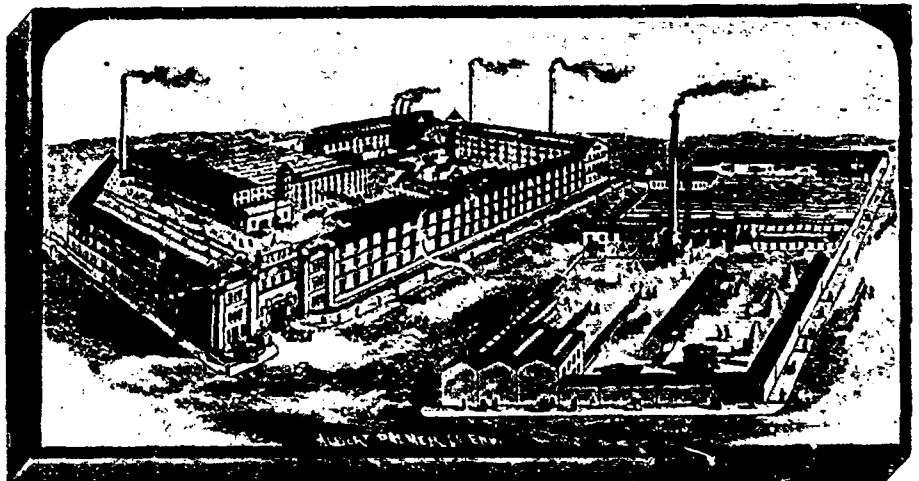
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