

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées

Cover title missing/  
Le titre de couverture manque

Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/  
Transparence

Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/  
Comprend un (des) index

Title on header taken from:/  
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments:/  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

# CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XVIII.

TORONTO AND MONTREAL, NOVEMBER, 1901.

No. 11.

**Have You Seen It ?**  
**The Harriman Automatic Loom**  
It Stops to Change the Shuttle

Write for Illustrated Red Book.

**The American Loom Company**  
READVILLE, MASS.

**McARTHUR, CORNEILLE & CO.** Importers and Manufacturers of

**OILS . . . . .**  
**CHEMICALS**  
and **DYE**  
**STUFFS**

310 to 316 St. Paul St.

**MONTREAL . . . . .**



**MILL SOAPS**  
**DOMINION DYEWOOD & CHEMICAL CO. TORONTO**  
MANUFACTURERS

**WATSON JACK & CO.**

7 St. Helen St., Montreal.

Full Lines of Dyewoods, Chemicals, Aniline and Alizarine Colors, New Chrome Blacks.

SOLE CANADIAN AGENTS FOR

The Society of Chemical Industry in Bale

**ANILINE COLORS.**

**New York and Boston Dyewood Co.**

MANUFACTURERS OF

**DYEWOOD Extracts**

Importers of INDIGO AND ANILINE COLORS.

SELLING AGENT IN CANADA:

A. W. LEITCH, 16 Hughson St. South, Hamilton, Ont.

**ANILINE DYES** } Extracts  
**LOGWOOD**  
**SUMAC**  
**INDICO**

*HEMOLIN BLACK, MORIN YELLOW*

**WM. J. MATHESON & CO., Limited**  
96-98 Foundling Street, **MONTREAL**

Main Office: 182-184 Front Street, New York.

Branches: Boston, Philadelphia, Providence.

Works: Long Island City, Port of New York

**W. T. BENSON & CO.**

**ANILINE COLOURS**  
**DYEWOOD EXTRACTS**  
**CHEMICALS, &c., &c.**

Specialties:

**Logwood for Cotton and Wool.**  
**Fast Onedip Cotton Dyes.**  
**Alizarines & Azo-Alizarines.**

164 St. James St., Montreal

**BELLHOUSE, DILLON & COMPANY**

SOLE AGENTS IN CANADA FOR

**KUTTROFF PICKHARDT & CO.,**  
NEW YORK.

**Anilines, Alizarines, Indigo, etc.,**

For Cotton, Silk and Wool.

Toronto Office—30 Wellington Street East.

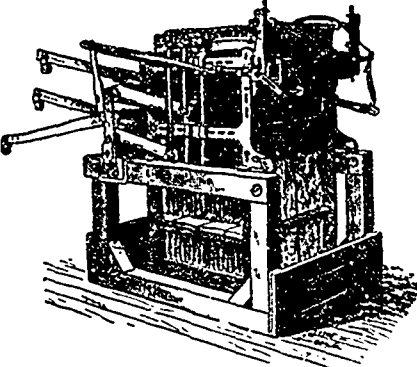
30 St. Francois Xavier St., Montreal

New York Office, . . . . . 20 Cedar Street.

USE THE  
**"Halton"**  
**Jacquard**

**BEST MACHINE ON THE MARKET**

Single Lifts  
 Double Lifts  
 Rise and Falls  
 Double Cylinders  
 Cross Borders  
 Brussels



The only  
 Reliable  
 Fine  
 Index  
 Machine.

"1304" Fine Index  
 Double Lift.

**Thomas Halton's Sons**  
 Alleghany Avenue and C. Street, - PHILADELPHIA

**ANILINES**  
**ALIZARINES**

**DOMINION DYEWOOD & CHEMICAL CO.**  
 TORONTO

Direct Importers. Sole Agents in Canada for  
 Messrs. The **FARBENFABRIKEN Vormals FRIEDR. BAYER**  
 & CO., Elberfeld, Germany.

C. G. THOMPSON.

J. S. MITCHELL.

**THOMPSON & CO.**  
 SHERBROOKE, QUEBEC.

Manufacturers of

**Bobbins and Spools**

OF EVERY DESCRIPTION

For Woolen, Cotton and Rope Mills. Extra facilities for  
 supplying new mills and filling large orders.

Correspondence Solicited.

Orders Promptly Filled.

**Loom Picker Co.**  
 H. P. GARLAND, Treas. **BIDDEFORD, ME.**

MANUFACTURERS OF  
**Rawhide and Leather Loom Pickers,**  
**Loom Harnesses and Reeds,**  
**Duck and Ticking Lug Straps,**  
**Tape Picker Loops, Leather Strapping,**  
**Black Oak-Tanned English Picker Leather,**  
**North Carolina Hickory Picker Sticks.**

Illustrated Catalogue sent on application.

W. H. PARKER

J. H. PARKER

**New Toronto Wool Stock Co.**

Manufacturers of

**CARDED and GARNETTED WASTE**

The Garnetting of Wool and Cotton Waste | Office and Works,  
 a specialty. Wool Stocks in every shade. **NEW TORONTO, Ont.**

**"WE HOLD THEE SAFE."**

**The Dominion Burglary**  
**Guarantee Co.**

LIMITED.

**Head Office, Montreal, Can.**

CAPITAL, \$200,000.

Insurance against burglary and housebreaking. Policies clear  
 and free from vexatious or restrictive clauses.

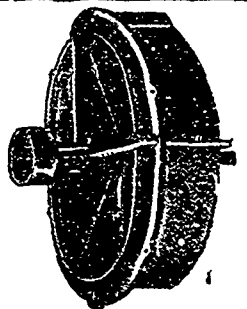
**CHAS. W. HAGAR, General Manager**

**ROBT. S. FRASER**  
**Wools, Peruvian Cottons,**  
**Noils, Tops, Yarns, Etc.**  
**Tetlow's Card Clothing.**  
 (STOCK IN MONTREAL).  
**Manufacturers of Wastes and Shoddies.**  
**17 LEMOINE STREET,**  
**MONTREAL**

**Utilize Your Exhaust Steam**

and heat your factory by our **HOT BLAST** or **FAN SYSTEM** of Steam Heating. Hot Blast Drying Apparatus for drying of all kinds of materials. Fans, Blowers and Exhausters of all kinds. Write for Catalogue.

**McEachren Heating & Ventilating Co.**  
**GALT, ONTARIO.**



# CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XVIII.

TORONTO AND MONTREAL, NOVEMBER, 1901.

No. 11

## Canadian Journal of Fabrics

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

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

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

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

TRAVELLING REPRESENTATIVE: A. W. SMITH.  
PHILADELPHIA AGENT: H. E. BURNETTE, Cor Fourth and Locust Sts.  
BOSTON AGENT: F. F. GRANT, 5 Gayland St., Roxbury.  
Toronto Telephone, Main 1392 | Montreal Telephone, Main 2589  
Business correspondence should be addressed to Montreal; but cuts, news items and editorial correspondence to Toronto; cuts from abroad should be sent by post wherever possible, not by express. Changes of advertisements should be in our hands not later than the 10th of each month to ensure insertion.

### THE CANADIAN TEXTILE DIRECTORY

A Handbook of all the Cotton, Woolen and other Textile manufactures of Canada, with lists of manufacturers' agents and the wholesale and retail dry goods and kindred trades of the Dominion; to which is appended a vast amount of valuable statistics relating to these trades Fourth edition. Price, \$3.00.

BIGGAR, SAMUEL & CO., Publishers,

### CONTENTS OF THIS NUMBER:

	PAGE		PAGE
Aloe as a Textile.....	340	Manufacturers and the Woolen Tariff.....	321
Among the Mills.....	334	Minor Textile Fibres.....	329
Artificial Blacks for Grey Mixtures.....	332	Montreal Cotton Co's Gault Mill.....	333
Brown Linen Hall, Belfast.....	324	New Way to Dye Wool.....	327
Calico Printers Combination.....	324	Parks Cotton Mills, St John.....	332
Cotton Crop Short.....	324	Personal.....	338
Cotton Growing in Africa and Asia.....	324	Sheep Raising in Canada.....	324
Dominion Cotton Co.....	323	Textile Design.....	340
Duryea Automobiles.....	334	Theories of Dyeing.....	330
Fabric Items.....	336	Treatment of Dyehouse Accidents.....	333
Foreign Textile Centres.....	327	Weavers' Knots.....	331
Fulling.....	338	Wool Market.....	338
Infant Mortality in Factory Towns.....	339	Woolen Carding.....	338
Latest Pattern Cards.....	336		

### THE MANUFACTURERS AND THE WOOLEN TARIFF.

The annual meeting of the Canadian Manufacturers' Association, held this month at Montreal, was probably the best attended and most representative gathering of the association yet held. One noteworthy feature of the proceedings was the general recognition by the other branches of the association that the woolen section, in so far as it represented the woolen manufacturing interests of Canada, brought before the association a special grievance in its resolution on the tariff; and the sympathy they showed towards the woolen men was the more sincere and effective because it was not begotten of the fellow-feeling arising from grievances of their own against the preferential

tariff. A large proportion of those who were strongest in their sympathy for the woolen manufacturers had nothing personally to complain of in regard to the incidence of the tariff on their own business, therefore, their recognition of the peculiar wrongs under which the woolen manufacturers suffer, by the tariff in its present shape, has a significance which should not be lost upon a Government which has heretofore set a face of steel against the pleadings of an injured industry, because it was thought to be too weak to make its voice heard. This apparent weakness was not because the woolen industry was insignificant, but because, being centred chiefly in one province, it had in the Federal Parliament no interested champions in any province but Ontario. However, it is hoped, and generally believed, that both the hearts and minds of the chief members of the Government are open to a conviction of the soundness of the claims of the woolen manufacturers, who are now plainly seen to have the great body of manufacturers in other branches of trade at their back. Indeed, the woolen merchants and clothing manufacturers of Montreal, as well as the representatives of the woolen mills at the convention, express the view that the Government will grant the demand or the equivalent of it, as set forth in the convention resolutions reported in another part of this issue. The Government cannot of course announce a tariff change beforehand, but the mill men, the clothing manufacturers, and the dry goods trade, expect the woolen, and most likely the cotton, tariff revised at the next session of Parliament. So confident are they of this, that in orders for woolen and cotton goods, a clause has been inserted providing that the amount of the difference in the tariff shall be paid by the sellers of all goods not delivered in Canada before the next session of Parliament.

While the principle of the preferential tariff will not be disturbed, the case of the woolen manufacturers will be met by so raising the general tariff that when the British preference is taken off, the result will give the manufacturers the amount of protection they had before. Probably most manufacturers will

care but little how the thing is done, so long as the result is a fair protection under the conditions which prevail in the woolen manufacturing trade. But we confess that the preferential tariff does not seem to be a strictly business method of helping the Mother Country. At best, the benefit of this tariff is only reaped by certain classes of British manufacturers or exporters, who do a direct trade with Canada; it is not the whole British nation which gets the benefit. Now, if the same tariff was levied against every nation alike, and if, instead of giving this preference to a few classes of people who happen to be engaged in Canadian trade, we gave a certain share of our entire customs receipts towards Imperial defence, we should not only be giving a contribution to the entire nation, and to the Empire generally, but we should save ourselves from the resentment of other nations, who are now discriminated against, such as Germany, whose retaliation for our preferential tariff has about killed off the little export trade we were working up there.

The Finance Minister, in his speech at the association dinner, repeated an old truth and touched on an old trouble, common to this country, and most other protected lands, when he said: "I do not believe that Canadian people individually have done their duty in their private purchases to the Canadian manufacturer. It is a misfortune that we still hang on to that old idea that a thing must be better if we only bring it from a thousand miles away. There is an old saying that the distant hills are green, and distance lends enchantment to the view. I know how prone the people of Canada are to buy foreign goods, not because they are any better, but because it seems to be the right thing to buy the article that is imported. Queen Alexandra, in this coronation year, expressed the opinion that the people of England should honor the coronation year by dressing in the products of the English mills, and the English factories. Let us take that hint to the people of Canada. Each citizen of the Dominion can do something to show that he is loyal to the factories of his country, and he can purchase Canadian goods, and that in time will be the policy of every loyal and patriotic Canadian." Upon which the *Globe* remarks: "There is a hint here for those who desire to encourage the manufacture of Canadian woolens. We believe that woolen cloths of excellent appearance and wearing quality are made here, but it is questionable whether they are fairly treated by the people. We have even heard of Canadian goods being sold as imported, owing to the prejudice in favor of the cloth manufactured far away." We take the last sentence to be a bit of irony, for one of the troubles of our woolen manufacturers for the past thirty years is that the better grades of Canadian tweeds and other woolens are constantly sold as

imported, and certain wholesale houses will not place any considerable orders for Canadian goods except with mills that will supply the pieces without labels or selvedge marks to show where they originate. The retailer sells them as imported goods, and in many cases believes them to be so. About sixteen years ago, a county of Lanark manufacturer wrote us complaining of this practice, and citing cases where he had gone into tailor shops to examine cloth, and was solemnly assured that pieces that had come from his own mill were the best Scotch goods. And the tailor really thought what he was saying was true. But realizing this evil, what are we going to do about it? Men in their haste to make money are not limited in their misrepresentations to Canadian goods, and this is only one of many forms of dishonest greed to which some businesses are addicted. There is one remedy—the refusal by mill men to sell goods, except under their own label or with their trade mark woven in the selvedge of the goods—but this is a remedy which not every manufacturer has had the courage to adopt. On the contrary, many manufacturers are quite indifferent to the national aspect of the matter, and not caring whether or not Canadian woolens are known to Canadian consumers as the product of Canadian mills, they are quite willing that the dealers should sell them as Scotch, English or German, so long as a good price and a ready market is obtained.

T. A. Russell, secretary of the association, deserves credit for the energy with which he has worked, and, on the whole, the intelligent use he has made of the facts placed before him. In dealing with the woolen question, however, he has been attempting to score too many points. In that part of his letter, quoted in last issue, in which he seeks to account for the increase of \$2,670,303 in the imports of woolens under preferential tariff by stating that machinery capable of producing \$2,750,000 of goods has ceased to operate in Canada, he is floundering out of his depth. Mr. Russell's authority for this, as he explains in a later communication, is a study of Docket's Textile Directory. We do not suppose the publishers of Docket's Directory claim to give as complete a list of the Canadian textile mills as the Canadian Textile Directory; but even if it were as complete, and this apparent change could be shown, Mr. Russell has quite failed to interpret the meaning of the change indicated. The abandonment of a certain class of woolen mills, which he seeks to put forward as an explanation of the increased importation of goods is only a process of evolution in the Canadian woolen trade, which has been going on for the past quarter of a century. Many of the concerns reporting themselves as having "one set of cards," are simply custom carding mills, which are dying a natural death, here and there all over the country, as settlement and

civilization advance, and the domestic industry of spinning, knitting and weaving vanishes before the modern mill. So, also, the one-set mill, equipped with the old-fashioned 40-inch cards, is doomed to extinction by the same law; and where the one-set mill exists to-day, it can only hold its own by getting in modern carding machines of large producing capacity. A large proportion of these mills, which have gone out of existence in the past ten years, were equipped in the first place with the antiquated machinery referred to, and amidst the development of modern machinery only held their own, just as the old hand knitting machines have hung on here and there in the face of the new automatic knitting machines. Many of the owners of these old one-set mills operated grist or saw-mills in connection with their woolen business, and from this circumstance, or from the fact that they had other property were able to keep running whether the mill made money or not—some of them just because they liked the occupation, and preferred it to inane idleness. But as these old veterans of the woolen industry drop off, the hum of the carding machine ceases, and "the creaking old mill is still." When a fire occurs in one of these mills, the owner goes out of business. Among the twenty or more mill fires of this class of mill in the past year, how many mills can Mr. Russell point to as being rebuilt? Yet the case is different even with a mill of only one set capacity, where that set is up-to-date. We have only to mention that the market value of an average set of second-hand 40-inch cards, such as is going in this country, is about \$200, whereas a set of 60-inch cards in good running order is worth \$3,000 or \$4,000, to enable the lay reader to understand the case. It will, therefore, be seen that Mr. Russell is mistaking a feature of the natural evolution of the woolen manufacturing business for an effect of the preferential tariff. There are enough reasons against the preferential tariff, as being peculiarly unfair to the woolen trade, without relying upon an argument which, as the late John Henry Pope said, has "nothing to it." Mr. Russell's estimate of the producing capacity of the 160 "sets" of cards, which he claims have gone out of existence, is founded on the same misconception as the other part of his letter.

The Canadian Manufacturer, which, from a protectionist view, has been a faithful and consistent advocate of the interests of the manufacturers, presents in its issue of October 18th an instructive table of the imports in woolens, compiled from the Trade and Navigation returns. In this table, which is summarized below, the letter A indicates the imports of carpets of all kinds; the letter B includes tweeds, flannels, winceys, felts, dress goods, and wool cloths of all kinds; C includes blankets, yarns, pressed felts and

shoddy, while D covers knit goods of all kinds, clothing, and all other fabrics of wool:

1896.		1897.		1898.	
Great Britain.	All Other.	Great Britain.	All Other.	Preferential Tariff.	General Tariff.
A..\$ 717,070	\$ 71,852	\$ 555,198	\$ 63,380	\$ 662,340	\$ 44,864
B.. 2,598,433	137,739	2,103,857	111,816	2,084,273	146,990
C.. 168,525	141,783	137,259	157,645	285,222	76,795
D.. 3,444,541	1,390,402	2,780,545	1,216,048	4,095,498	589,865
<hr/>		<hr/>		<hr/>	
\$6,928,569	\$1,741,776	\$5,576,859	\$1,518,889	\$7,127,333	\$858,514
1899.		1900.		1901.	
Preferential Tariff.	General Tariff.	Preferential Tariff.	General Tariff.	Preferential Tariff.	General Tariff.
A..\$ 876,459	\$ 55,329	\$ 945,735	\$ 44,633	\$ 898,288	\$ 38,133
B.. 2,588,496	227,916	2,576,242	326,725	3,061,282	365,605
C.. 359,052	201,119	334,174	270,790	318,237	282,037
D.. 3,825,854	1,668,972	3,142,611	2,160,655	3,061,736	1,918,797
<hr/>		<hr/>		<hr/>	
\$7,649,861	\$2,153,336	\$6,908,762	\$2,802,703	\$7,339,543	\$2,604,572

The first instalment of the preferential tariff came into operation 23rd April, 1897, from which date till 30th June, 1898, the preference in favor of Great Britain was one-eighth, or 12½ per cent. From 1st July, 1898, the preference was 25 per cent., and from 1st July, 1900, 33 1-3 per cent. These figures do not seem to prove that the preferential tariff has promoted British trade with Canada to the disadvantage of foreign trade with Canada. As the Manufacturer says: "The increase in value of woolen goods in the four years subsequent to 1897, during which the preferential tariff was in force, was \$2,818,367; but it should be observed that the value of the imports during that term under the preference increased only \$1,762,684, and not \$2,670,303, as stated by the secretary of the Canadian Manufacturers' Association. It should also be observed that the increase under the general tariff during that term was \$1,055,683." Time may show that after all, one of the chief results of the preferential tariff has been the promotion of German exports to Canada via Great Britain in the form of smuggled goods and goods sent over to England to be put through a so-called process of finishing. Needless to say, that is not what the preferential tariff was created for.

**DOMINION COTTON CO.**

The position of the Dominion Cotton Mills Co., which controls nine mills situated at Montreal, Magog, Halifax, Moncton, Windsor, N.S., Brantford and Kingston, has of late been attracting considerable attention. Their stock, which eighteen months ago stood at 119, and a year ago at 98, has recently experienced a rapid decline, and fell as low as 50, the lowest point reached for years. The company has

been paying 6 per cent. dividends on its common stock, but a fear that it would not be able to continue doing so, with a rumor that the next dividend would be passed entirely, and that some of the directors were selling out, caused hundreds of holders to sell for whatever they could get, and caused the slump. As there is something over \$3,000,000 outstanding, it means a shrinkage of a million and a half in little more than a year. There is also a million of preferred stock, which is reported to be held by one of our largest banks as security for a large loan, and a 4½ per cent. bond issue of \$1,465,000, the redemption of which was to commence in 1900, and continue at the rate of \$35,000 annually. A 6 per cent. stock should sell at par or over, and the fact that it is down to 50 naturally causes much uneasiness.

It must be remembered, however, that at the time the company took over the mills, it was found that several of them were not up to date, notably those at Brantford, Kingston and Halifax, and C. R. Whitehead, the manager, insisted that they should be modernized. A large part of the indebtedness of the company was incurred for this purpose, and from this time forth they may be expected to reap the benefit of the expenditure. The quality of the goods now turned out is said to be better than ever before.

There does not seem to be any good reason for apprehension. Cotton manufacturing in Canada should be, and is likely to continue, a profitable business. The Montreal Cotton Co. is making extensive additions to its mill at Valleyfield, as referred to elsewhere in this issue. Whether the state of affairs in the Dominion Cotton Co. is the result of stock manipulation, or of disagreements, as has been hinted, between the directors and the management, we see no reason, because of its position, to fear for the future of the cotton mills in Canada.

—The President of the Dominion Sheep Breeders' Association takes an optimistic view of the prospects of sheep raising in Canada. Last year was the most prosperous, he thinks, which the sheep breeders of the Dominion ever experienced, but it is to be noted that this is not so much the result of the condition of the wool market as of the demand for Canadian mutton. The price of wool is so much controlled by the whims of fashion as to be a quantity of uncertain amount; nevertheless, in deciding what breeds of sheep to keep, the product of wool has to be kept in mind. The winter show, shortly to be held at Guelph, will afford an opportunity of witnessing the progress made in sheep raising, as well as in other stock.

—There is every prospect that the cotton crop will prove to be short, and wagers have been laid in New York that middling cotton will reach 10 cents before January, and 12 cents before the close of the current

commercial year. It is only a few years since the difference of the price of cotton on Southern markets and in New York or Liverpool was measured by the freight from points in the South to the trading centres named. Now that difference has been considerably reduced and in some instances actually wiped out, the prevailing New York price often being the price paid at points in the South. This change is due to the development of the cotton manufacturing industry in the South, and is a matter of considerable advantage to cotton growers.

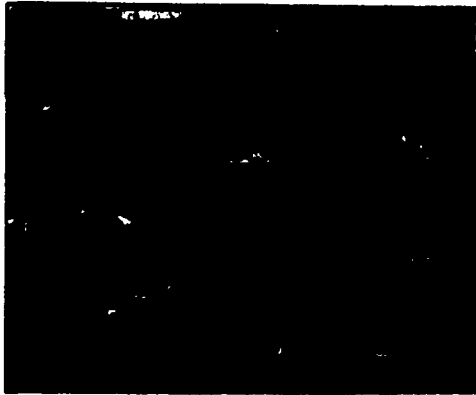
—Trade Combinations do not always accomplish their ends. The history of that of the calico printers of England has been one of disaster. It is not much over a year since they formed their trust. During the first six months, they declared £180,000 profit, which was not used to declare dividends, but handed over to profit and loss. During the last six months they lost not only that £180,000, but £66,000 more, making their entire loss during six months' operations £246,000. The reason for this is thought to be that they purchased old and antiquated plants at too high a valuation. The sewing cotton combination has also been unfortunate, due largely to other causes, namely, ineffective management, inferior plants, and generally unsatisfactory condition of the market.

—Germany is making a strong effort to raise cotton in her African possessions. Four American negroes, three of them graduates of Tuskegee Institute, and one a graduate of Fisk University, have been in Togoland (West Africa), since last spring, directing experiments in cotton-raising. They report a reasonable degree of success. Togoland is almost under the equator, has about 26,000 square miles, and a population of 500,000. If this attempt is successful, cotton-raising will be tried in all the other German possessions in Africa. The production of cotton in Central Asia is also increasing every year. The Government and the cotton consumers are assisting the planters to improve the cultivation, and they have now almost learned to prepare the cotton by the American system. Thus the area of production for raw cotton is being extended.

#### THE BROWN LINEN HALL, BELFAST.

It will be in the recollection of our readers that we last week gave an account of a rather unusual scene which had taken place at the old Brown Linen Hall, in Donegall street, Belfast. For nearly half a century no business has been transacted on the ancient piece of open ground with a dilapidated wall fronting in Donegall street, and a disreputable gateway, over which is inscribed, "Brown Linen Hall, 1773." But regularly every Friday, and punctually at the hour of 11 o'clock in the forenoon, the ancient gateway was unlocked, and the open space, with its broken-down tombstone-like stands, and its goodly crop of rank grass, thistles, and dockans was exposed to the gaze of the curious passer-by for

a few hours. The gate would then be closed and locked once more, not to be opened until the following Friday. Though no business was done, the ancient mart was not entirely deserted. For many years a solitary web of brown cloth was visible for a short time each Friday, deposited in the gateway by the late John McNicholl, of Maghera, who made his weekly journey for the purpose, and who, after remaining for a period varying from a few minutes to an hour or so, removed the web until the next Friday, when the same performance was enacted. By this means, it is said, he thought he preserved or established some proprietary claim to the



Interior of Old Brown Linen Hall.

old place. He died a few weeks ago, and his son, James McNicholl, proposed to continue his father's practice, but on arriving at the old Brown Linen Hall on the 22nd inst., he found the gate locked. Murphy & Orr, the well-known linen and damask manufacturers, 18 Donegall street, whose premises adjoin the market and who are the custodians of the key, and claim to be now the legal possessors of the ancient market place, questioned his right to enter the ground and refused to open the gate. Then followed the scene described in our last issue. Mr. McNicholl sold one or two pieces of his web, and in the evening closed the premises, and had a new lock put on the outside of the gates, while Murphy & Orr had it locked as usual on the inside.

On Thursday night, 15th inst., Bernard McNicholl, Maghera, with his two brothers, James and John Joseph, and about a dozen young men in their employment, visited the place to effect an entrance in order to be in possession of it on Friday, which, according to former custom, is the weekly market. Admission by means of a key being impossible, they removed the lock to find that the gate was barricaded on the inside. Procuring a ladder, Mr. McNicholl and his friends scaled the wall, got into the grounds and removed the debris obstructing the passage, among which was found the ancient web which had been allowed to remain on the premises to keep up the appearance of a market. Mr. J. S. Mahon, solicitor, attended with the Messrs. McNicholl to give advice if necessary, but no one present raised any question as to the legality of the matter. A number of police on special duty and a large crowd of people watched the proceedings with interest. Having cleared the gateway, Messrs. McNicholl and their assistants remained on guard all night. On Friday the market was visited by a large number of people, some of whom bought small quantities of the web, probably as souvenirs. At 2.30 the brothers and their friends quietly departed, locking the gate on the outside when they left.

The first Linen Hall was established by the Earl of

Donegall in Ann street about the year 1746, but the place was sold by auction on July 13, 1756. Its place was taken about 1754 by a Linen Hall in Donegall street, then called New street, upon or near the site of St. Anne's church, now being converted into a cathedral. When the parish church of Belfast was to be erected in 1774, the place on which the Linen Hall stood was, according to Benn, the local historian, deemed the most suitable site. It was accordingly chosen for the church, and the present Brown Linen Hall was given in its stead. By the order of George Black, Sovereign of Belfast, published in 1775, the sale of brown linen cloth was to be confined to the "Linen Hall Yard," and "the market for yarn to Broad street, otherwise Waring street, from the corner of Skipper's lane to the corner of Bridge street." The nature of the trade carried on in the Brown Linen Hall up till the middle of the last century has been thus described by the local historians: "The linen bleachers or their agents travelled about in groups, like a small troop of cavalry, from market to market on horseback for society and security, spending almost the entire week in this way." When they reached the market places they were elevated "on stools or tables or small built permanent standings"—remains of some are still to be seen in Donegall street—receiving the webs for examination, and purchase from the weavers who stood beneath them, and who came from the surrounding districts. The quantity of linen bought in this manner in Belfast was not as large as in Ballymena and other rural centres. In 1784 the sales in the Belfast Brown Linen Hall were estimated to amount to £1,000 per week, whereas sales in many other places far exceeded that sum. The old loom and spinning-wheel have long since disappeared from the farmers' houses, except in specific districts, such as near Lurgan, where special classes are manufactured that the power-looms are unable to touch. In 1855, David Alderdice, who had the key of the Belfast Brown Linen Hall in his possession, refused to open the gate. The members of the trade called a meeting, and authorized Robert Roddy to get a new lock and key, and he was duly installed as custodian. Mr.



Mr. McNicholl and His Web of Cloth.

Roddy's successors in business are Murphy & Orr, and they continued in the guardianship of the market place, and, we believe, have paid for many years the rates and taxes for which it is assessed. It is stated that by the terms of the charter, which appears to have been lost, the hall is to be opened at 11 o'clock every Friday for the transaction of business—the sale of brown linen. The present Mr. McNicholl's grandfather is said to have sold brown cloth or sacking (not linen) at the entrance of the old Brown Linen Hall, and was permitted to stand in the shelter of the gateway during wet weather. His son, the late John McNicholl, although no sales took place, continued the custom of placing a web of



the brown material in the gateway, and now the third generation, in the person of James McNicholl, desires to carry it on still longer, but Murphy & Orr, who keep the keys, think the time has come when the little pantomime should cease. The market, it is believed, really reverts to the Earl of Shaftesbury, but there are so many "ancient lights" surrounding it that it is doubtful if his lordship would trouble about his reversionary interest. What the upshot of the dispute will be no one knows, but many will be glad to see the old market-place—now a desolation—turned to some practical account, and no longer an eyesore in one of the leading thoroughfares of progressive Belfast.

The following minute of a meeting held in 1858 has come to light: "At a meeting of members of the linen trade at the rooms of the Fax Society, to consider the proper course to be taken for the purpose of rendering the Brown Linen Hall available to the trade, under the change of circumstance which has occurred, October 8, 1858. Present: Mr. Jonathan Richardson, M.P.; Mr. John F. Ferguson, J.P.; Mr. John Andrews, J.P.; Mr. William Charley, J.P.; Mr. John Currell, J.P.; Mr. William Ferguson, Mr. Robert Roddy, Mr. Jonathan Richardson, M.P., in the chair. Mr. Roddy having stated that David Alderdice, who has long been employed as caretaker, refused to return the key, which had been entrusted to him by Mr. Roddy for the purpose of opening the hall on the market-days, it was resolved that said Alderdice be dismissed as caretaker, and that Mr. Roddy be authorized to remove the present lock and replace it by a new substantial lock, which he is requested to hold for the benefit of the trade."—Draper's Record.

#### LATEST PATTERN CARDS.

Farbenfabriken vorm. Fr. Bayer & Co.

Fashionable Shades on Cotton Cloth.—This is the latest pattern card issued by the Elberfeld firm, and it illustrates a complete range of shades on cotton cloth for the season of 1902. The recipes given on the card show that the firm have endeavored to produce the shades which will be fashionable next year in as simple a manner as possible. The directions for dyeing the patterns are merely given in a concise form on the card, but the detailed recipes will be found in the firm's special recipe book No. 704, 1898, a copy of which may be had at any time on application.

Pluto Black F Extra.—We give on our sheet this month a pattern dyed with this new homogeneous color of the Pluto Black series, the concentration of which is twice as strong as that of the ordinary brands. It is dyed like the other qualities of the same class with the addition of Glauber's salt and soda, and produces a bluish black tone. The properties of this new brand are said to correspond with those of the BS extra, with the exception, however, that the F extra has the advantage of being faster to light. Apart from the dyeing of cotton this new product will also be of interest for half-wool dyeing. It is very well adapted for dyeing in the milling machine, but for this process of dyeing the preference should be given to the older BS extra brand.

Read Holliday & Sons.

Cotton Colors Developed.—Sixty patterns of cotton yarn dyed with either Auroline, Auroline and I-grain Black BB, Ingrain Black B, BB, RX or R, and developed with either Yellow, Orange, Scarlet, Red, Brown, Maroon, or Fast Blue developer, or Paranitriline, are contained in this card. The shades include a variety of blues and blacks, and several excellent reds and greens.

Badische Anilin and Soda Fabrik.

Patent Kyrogene Olive.—This is an addition to the

group of sulphur dyestuffs, which will be useful as a self-color and also for shading purposes. Four shades are shown on the card obtained with 2, 5, 10 and 20 per cent. of the dyestuff respectively. A great variety of olive and brown shades can be obtained with the new color in combination with Kyrogene Brown or Kyrogene Black.

Patent Kyrogene Black BG.—Four dyeings on various descriptions of cotton yarn are attached to this card, showing that excellent shades of black may be obtained with the new product. Patent Kyrogene Black BG has been made chiefly for working in dyeing machines, for which it is particularly adapted in consequence of its good dyeing qualities and the fact that the after-treatment with chrome, etc., can be dispensed with.

Alizarine Black WX extra in paste on Piece Goods, and Alizarine Black WX extra in paste on Loose Wool, Slubbing and Worsted Yarn dyed in one bath.—Although it has many excellent properties, the Alizarine Black WR of the Badische has one drawback, i.e., the dyed material rubs off somewhat if not well rinsed. Consequently the firm have set themselves to work to remove this objectionable feature, and have succeeded in producing an improved quality of the dyestuff which they send out under the name of Alizarine Black WX extra. The baths of Alizarine Black WX extra are completely exhausted, consequently the dyeings do not rub off at all. The new brand gives a somewhat bluer shade than the WR brand. The two cards before us show the new color on slubbing—for which it is particularly recommended, as it is fast to potting—on loose wool, worsted yarn, and on piece goods.

Anthracene Blue SWGG extra in powder on Loose Wool, Slubbing and Worsted Yarn, and Anthracene Blue SWGG extra in powder on Piece Goods.—This product gives brighter shades than the old Anthracene Blue SWGG, and will therefore be particularly useful where the production of clear bluish fashionable shades, or of pure blue shades, is desired; whilst Anthracene Blue SWGG, on account of its duller, denser tones, comes into use more for heavy shades. The two pattern cards show dyeings produced with the new color on chrome mordant and in one bath.

Kalle & Co.

Biebrich Patent Black on Worsted Goods.—This is a neat little card containing seven large-sized patterns of woolen cloth dyed with the different brands of Biebrich Patent Black. The brands used are: W. 4ANE, 4AN extra, 6ANE, and 7ANE. Small percentages of Orange IV and of Acid Violet 7B are combined with the black dyestuff in two or three cases, and all the shades are excellent.

Diazine Black on Artificial Silk.—This card contains two patterns of silk dyed to a very good shade of black. The first is Sirius silk from Aix la Chapelle and is dyed with 6 per cent. Diazine Black and 4 per cent. Diazine Green. The second is Lehner-Chardonnet silk from Frankfort, and the shade is obtained with 2.1 per cent. Diazine Black and 2 per cent. Diazine Green.

Dyeings on Velveteen.—Forty patterns of velveteen are displayed on this well got-up card. Some of the dyes used are: Safranine AG extra, Methyl Blue, for cotton, Soluble Blue I, Auramine II, Croceine Orange, Croceine Scarlet 3B, Magenta Ia, Methylene Blue 2B, Bismarck Brown G, Brilliant Green, Sulfaniline Black B, Naphthamine Yellow G, Naphthamine Black RE, etc.

Direct Dyes on Mercerized Cotton Yarn.—This is another well-arranged and useful card containing nearly fifty samples of mercerized cotton yarn dyed to varied shades with Messrs. Kalle's well-known colors. A fine collection of yellows, got with Chromine G, Naphthamine Yellow 3G, 2G, GN

and RN, are first displayed, followed by some good orange shades, old gold, various reds, browns, blues, etc.

Naphthamine Browns on Cotton Yarn.—Naphthamine Brown 4G, 2G, RE, R2B, and 6B, are shown on this card, dyed direct and treated in various ways. For instance, the R2B brand is shown on samples of cotton yarn dyed direct with 2 per cent. dyed with 2 per cent. and treated with chromium fluoride, dyed with 2 per cent. and treated with diazotized paranitraniline, dyed with 2 per cent. and diazotized and developed with beta-naphthol, and dyed with 2 per cent. and diazotized and developed with metatoluylenediamine.

### NEW WAY TO DYE WOOL.

A new method of using indigo on wool is described in Hermbstadt's Magazin fur Farberei und Zeugdruck. Raw, uncleaned wool is stratified in a vat with powdered indigo. The bottom and top layers must both be of indigo and the layers of wool must be uniform. About 1-lb. of indigo is required for each 24-lb. of wool for a dark blue. The whole mass is next covered with a solution of carbonate of potash of 3 deg. Tw., which must be poured in warm, but not too hot. The wool is then thoroughly worked, that it may be thoroughly soaked with the liquid. The vat is then kept warm for a week, the wool being frequently turned over during the period; the oftener that is done the better will be the result. Nothing then remains but to rinse and dry the wool. The remaining liquid can be used to dye light blue, or light blue can be dyed from the first by using less indigo. All expense and loss of weight from cleaning the wool is avoided, and the color is said to be as permanent and as beautiful as can be got with wool.

## Foreign Textile Centres

Manchester.—The demand for seasonable goods is fair and the last quarter of the year promises to be more satisfactory than at one time appeared probable. Manufacturers of the finer classes of goods are not meeting with much support. Coarser goods are still being turned out to a fair extent, but, without further Government orders slackness is threatened in this branch. There is a good deal of machinery only partially employed, and producers say that until values are on a lower basis an extensive turnover is impossible. On the other hand, with spinners talking of stopping more machinery, cheaper cloth seems unlikely at present. The New York trade, however, is holding up fairly well, and linen agents here are hopeful of an early change for the better in the home market. Disquieting reports come from the United States respecting the cotton crop. It is said that the frost has been severe enough to check the development of the plant in a considerable section of the South. On the other hand, it is affirmed that the crop may reach 11,500,000 bales, and that, as a smaller proportion than usual has been received to date, large movements may be expected later on. Any increase likely to result from enlarged area of planting has been wiped off, and the season will need all it can do to equal the results of last year. The market is now receiving supplies of yarn from the mills which have been completed of late, and when those in course of construction are finished, the increase in the number of new spindles in Lancashire will be considerable. The advent of such competition at the present moment is unwelcome, as spinners are getting low prices in the face of comparatively dear cotton. Statistics respecting cotton would

seem to justify belief in higher prices, but buyers refuse to be influenced by the fact, owing to their belief in the continuance of improvement in the growing crop, and a continuance of open weather in the Southern States.

Nottingham.—Buyers of lace and curtain yarns place their orders sparingly. There is no pressure for the delivery of goods, and an impression prevails that there is nothing to lose by delay. Merino and cashmere yarns are in good request, and prices are firm, with an upward tendency. The demand for spotted nets exceeds the supply, and prices are against buyers. Fine millinery laces and nets are in request, and some fairly good orders have been placed for cheaper goods for export. The competition from Germany, which has been growing of late years, makes itself felt more and more.

Kidderminster.—Business is increasing steadily. In spite of the lack of demand for the past two months there has been very little jobbing, or selling off stocks of carpet. Buyers are now beginning to place their season's orders, but it is not to be expected that the trade will be fully busy for a few weeks. The yarn trade keeps the slight improvement of the first of the month, but is still quiet. Business and prices in finer counts of worsted are a little better, and the indirect effect on carpet yarns, though slight, is quite noticeable. Spinners have grown cautious in the face of a firmer wool market and a wider enquiry for yarns of various sorts.

Belfast.—The linen market is steady, but quiet. Buying all over is restricted to immediate needs as far as possible. Best Irish flax is readily bought, but inferior descriptions are slow of sale. Current business in spun goods, coupled with old orders, keep stocks from increasing, and sales are not being forced by producers; prices are unchanged. The manufacturing branch is rather more than maintaining its position, with production increased a little. The home demand for white goods is quietly regular, but there is no briskness. Cotton makes of handkerchiefs are in better request, but linen handkerchiefs keep rather quiet. Handloom linens for bleaching remain dull. There is an easier demand for bleached and finished linens. United States orders keep coming forward steadily and to a fairly substantial amount. Trade with the Continent is a shade better, but business is only moderate. Canadian trade is quiet.

Leeds.—The business done on winter account is unsatisfactory. Cheaper woollens have improved, and serges and venetians, chiefly for women's wear, are being disposed of from stock in larger quantities. There are also indications that unions are more popular on the home market, and the demand is now running on low woollens. There is no improvement in the shipping branch, and most of the oversea markets are unprofitable. The Royal tour has materially stimulated demand in Australia and Canada. At the mills worsted looms are fully employed on spring orders, and it is considered that the delivery of the finer qualities will be up to the average. The orders for the medium and lower class makes are less satisfactory. Manufacturers who have to buy wool complain that the price obtained for the manufactured article leaves them little profit, in face of the severe competition.

Leicester.—The yarn market is active, with small stocks and a full output. The deliveries both on home and export account are on a large scale, and spinners are in a position to insist on better prices. The hosiery trade is more active, the deliveries are well up to the average, and the decline in South African orders is compensated for by the larger contracts for army and navy purposes.

Dundee.—Transactions in this market are limited to actual wants. Flax and jute continue to droop. The one exception is jute of high quality, which is rather dearer. All other qualities are offering even a shade under recent low sales. The crop is still believed to be large. The remarkable thing is that with this large crop there is still a scarcity of offers of the best marks. Jute yarns are also quiet. The difference between the highest and lowest qualities is greater than usual. The same remark applies to hessians. Heavies are also quiet, but there is enquiry for the best spins. Twills for bags on Government account will keep the looms busy for some weeks. The linen trade is unchanged.

Bradford.—The wool market continues very much in the same condition, fine merino wools being firm, but medium colonial crossbred wools are rather weaker. The extremely low price of the very coarsest classes of crossbred wools has caused these to be in better request. The present supply of fine merino wool is equal to present requirements, so that prices are relatively lower than on the continent, or at the sources of supply in Australia. This condition is due to the fact that Bradford buyers of merinos bought more freely than usual at the London July sales, when rates were fully 10 per cent. under present rates. As they are still holding this cheap stock they are able to meet their best customers on terms somewhat below to-day's rates, but this condition of the market can hardly be looked upon as more than temporary. The prospect is that fine wools will before long advance, though in the present quiet state of the textile trade any advance would retard business. Crossbred colonials are weak, and have probably not yet reached their lowest point. This is due to the tremendous increase in the production of coarser wools in Australia and New Zealand, which grew from 32,000,000 lbs. in 1880 to 65,000,000 lbs. in 1890. This growth has been fostered by the trade in frozen mutton. A considerable quantity of this wool is consumed in the continental yarn trade, which is at present in a depressed condition. The export worsted yarn trade is also quiet. Goods made from the finer yarns are more fashionable at present, and as these yarns are produced by French, German and Belgian manufacturers the demand for British yarns is necessarily restricted. The demand for the heavier class of dress materials is somewhat better. For spring trade novelties in fine silk and wool fabrics, and plain cloths with special unshrinkable and unspotable finish are meeting with a good reception.

### FULLING.

Regarding the preparation of soap for fulling purposes, it is quite impossible to give any definite rules or formulas, which can be rigidly adhered to, on account of the fact that much depends upon the circumstances and conditions with which one has to deal. It is necessary to have the soap of sufficient strength to act upon the grease in the goods with a saponifying effect, and very much depends upon the kind and quality of oil used upon the wool in the carding process. It would make quite a difference whether the oil were a pure, high-priced article, easily saponified, or a cheap combination of wool oil, possessing questionable merit. There are oils and oils for wool, with a variation in price and quality, and as we generally get about what we pay for, it is a matter for the manufacturer to decide. But as a matter of economy, as well as final good results, it will be well for him to consider its effect in the finishing department, as well as its adaptation to the carding process.

There are honest, meritorious wool oils, made by well-known firms, and such as will give good results in carding, and cause no trouble in finishing, and they are cheaper in the end than some mixtures that may work reasonably well in the carding, and cause extra expense, and possibly trouble in the finishing. After a little careful study, the finisher can determine about the strength of soap required, and it is a matter that devolves upon his skill and good judgment. In this matter it will be well for the manufacturer to bear in mind that when the finisher once gets his soaps adapted to the conditions, he should not be forever trying some new oil, and expect his finisher to meet the requirements of the changes. On this account many a finisher's work has been condemned, when the fault was entirely with the variety of oils in the mill, which made it impossible to have a soap adapted to them all.

One very important thing which sometimes causes trouble, either from ignorance or an undue haste, is the time given for boiling the soap in its preparation for use. There should be a sufficient number of tanks in which to prepare the soap, so that plenty of time can be allowed for boiling and cooling each batch before using it. Some soaps might not require as much boiling as others, but it is a good thing to remember that boiling improves, while an insufficient boiling renders it unfit for use, and it is best to be always on the safe side. With insufficient boiling it may appear all right while it is warm, but when it gets cool, it will become watery and useless.

When the soap is in use, if it loses its glassy appearance and its toughness, it is an indication that more boiling would have been an improvement. A good fulling soap should be firm, tough and smooth and glassy in appearance when it is cold, and even with the right mixture, it will fail to have that appearance unless properly cooked.

Possibly this article may be read by some practical finishers, who would not need the points given; but the learner and young finisher cannot learn them too soon. I would not attempt to advise regarding the kind or make of soap to use, as it might indirectly discriminate against some other equally as good. Any good fulling soap, from a manufacturer of repute, ought to do good work.

It is always best to procure a neutral soap, for you can then add the required amount of alkali, and always be sure of uniformity of strength. Besides which, it is not profitable to pay soap price for alkali, which can be bought at a much lower figure.

Of course, it will be understood that the body of the preparation will be governed by the amount of the soap used, and this is a matter that can be very easily adjusted by the finisher. The body of the soap should be sufficient to hold and carry all the foreign matter the goods contain, and retain its body through the fulling process. If the goods are very dirty from the use of low stock or if they are such as require a heavy felting, and consequently long time for fulling, the body of the soap should be heavier than would be required upon cleaner or lighter goods. By wringing the goods slightly during the process one may determine regarding its quality for the work being done. If it has a thick, creamy appearance, it is a good indication, but if it should run down over the hand with a watery appearance, it will be well to improve it in the next making up. When it is certain that the soap is prepared all right, the next important matter is a careful and intelligent application; and use of it. First of all, to obtain the best possible results, the soap should never be used until it is "stone cold." The best method of applying the soap is by the use of a good

soaping machine, which can be adjusted to give the cloths exactly the moisture desired, wet them evenly, and avoid any waste of the soap. Another advantage of the soaping machine is that the interior of the fulling mills is always free from surplus soap, rendering them easier to clean and less liable to decay and get out of repair, than when constantly coated with surplus soap, as is the case when the soaping is done in the mill. If, however, the soaping must be done in the mill it should be turned in gradually, at the back of the mill, while the goods are in motion. It is well to turn it in slowly, allowing the cloth to go around several times while putting on each pailful, thus insuring uniformity of moisture, which cannot be secured by dumping it in carelessly.

Sufficient quantity should be applied, so that by a gentle wringing of the cloth it will make its appearance on the outside or upon the hand. Rather than run the risk of getting the cloth too wet, which will hinder its being properly felted, it is best to stop a little short of the estimated amount required, allow the goods to run eight or ten minutes to get the soap thoroughly equalized, and then supply what more is needful. By adopting this method you may avoid the possibility of over-wetting, which is otherwise liable to occur, on account of the variation in the weight and yardage of the goods from the loom. The goods being once properly soaped, it must not be supposed that they will require no further attention on this point.

There is always a tendency for the goods to dry to some extent while running, besides which, when they begin to be fairly felted they will carry, and should have more soap than at the start. At any time during the process if they fail to show an appearance of soap by a gentle wringing of the cloth, a little more should be added, always being careful never to get them so wet that they will show the soaping streaks or a lather upon the surface of the cloth without the wringing test. Equally important with the moisture is the matter of temperature. The soap being applied cold, the mill should be closed, and remain closed until the goods become well warmed up, after which the temperature should be regulated if necessary by opening the rear doors to regulate it.

How warm they should be allowed to become is a matter to be left to the judgment of the finisher. Special care should be observed that they are not allowed to overheat, which will prove injurious to both the color and the fabric. Goods intended for a face finish, such as broadcloths, beavers, kerseys, etc., should be run at a moderately low temperature, to secure a good, compact felt. In giving the mills ventilation, it should be done, if possible, wholly by opening the back doors. By opening the front doors the rapid motion of the cloth will draw in a current of air, lowering the temperature very rapidly. Above all things, it should be the constant aim of the finisher to regulate, as far as possible, the moisture and temperature, so as to secure uniform result, and to do this will require a careful and trusty man to observe the points suggested in this article.—Cassimere in Wool and Cotton Reporter.

### MINOR TEXTILE FIBRES.

The last of the series of textile lectures was given in London, Eng., recently, by A. E. Garrett, F.R.G.S.

**Jute and Sisal Grass**—Referring briefly to jute, Mr. Garrett said it was obtained from two different species of plants, both of which belong to the order Tiliaceæ (elm tree). The order embraced several genera, the bark of which yielded

fibre, but the corchorus was the most remarkable, as it included the two species of fibre producing the entire jute of commerce at the present day. In 1795 Dr Roxburgh showed bales of fibre prepared by himself from the stalk of one of the two species of jute plants, but its cultivation appeared to have been going on a great number of years before that year. The greatest jute producing district was in the lower part of the valley of the Ganges and Brahmaputra, and of late years the fibre had also been manufactured in the towns of that district. The most important centre of the industry in the British Isles was Dundee. Sisal grass, or heneguen, had been in use in Yucatan from earliest times. There were two varieties of the cultivated plant (white hemp and green hemp) which furnished sisal—the fibre taking its name from the old port of Sisal from which it was first exported. The export of sisal grass from Yucatan during the ten years ending December 31, 1898, was 533,000 tons.

**The Mohair Industry**.—Dealing with mohair, Mr. Garrett said it was now more than fifty years since Sir Titus Salt and others found out that it was possible to manufacture dress goods from the wool of the Angora goat and the llama. The late Sir Titus Salt, as was well known, built the town of Saltaire. It must be remembered that alpaca and mohair were not exactly one and the same material. Alpaca was the dress-material manufactured from the wool of the alpaca. Mohair was the product obtained from the Angora goat, which had first for its chief home the uplands of Asia Minor. The animal had since been introduced into Cape Colony, where it had succeeded so well that at the present time the Cape supplied as much, if not more, of the raw material than any other part of the world. In 1856 mohair was solely produced by Asia Minor (Asiatic Turkey), and was still known as Turkey mohair. At first, of course, the quality of the wool obtained from South Africa was not equal to that from Asiatic Turkey; but in recent years great care had been given to the rearing of the goats in South Africa, and the wool now was equal in quality to the best Turkish. The finest hair was obtained from the youngest goats, which were clipped for the first time when only six months old.

From remote antiquity the wool of the Angora goat had been used. In the Old Testament Moses commanded the Israelites to bring white silk and goat-wool to weave the altar cloths and the curtains for the Tabernacle, and in Exodus was the following text: "And all the women whose hearts stirred them up in wisdom spun goats' hair." Further, the hair of the Angora goat was woven into cloth in the time of the Persians.

Angora wool, similar to the alpaca and llama used in manufactures, attracted the attention of English merchants, and Mr. Mosenthal was successful in introducing the Angora goat into Cape Colony, the climate of which, especially that which prevailed in the dry and open districts of its plains, resembled that of Asia Minor, and was eminently adapted to the successful breeding of the Angora goat. Mr. Mosenthal undertook a journey to Asia Minor with the express purpose of procuring a flock. In that undertaking he succeeded, and finally landed his precious freight at Southampton in August, 1856, from which port the animals were sent to London and placed in Victoria Park. From London about thirty of the goats were taken to the Cape of Good Hope. The skin of the Angora goat was very soft and flexible, and from it was made in Turkey the best quality of morocco leather.

The mohair imported into England during the last three years was as follows: From Turkey, 1899, 12,400,000 lbs.; 1898, 10,220,000 lbs.; 1897, 10,700,000 lbs. From Cape, 1899: 12,800,000 lbs.; 1898, 10,000,000 lbs.; 1897, 12,100,000 lbs. And

the average price in November and December last was: Turkey mohair, 1s. 8½d. per lb.; Cape mohair, 1s. 7d. per lb.

Mohair, was of course, manufactured into other fabrics than dress materials. High-class twilled linings were often made, which were used more on the Continent and in America than in England, and mohair braids, laces and trimmings of various kinds also took a good deal of the raw material. Plushes made from mohair were now largely used for upholstery purposes, and the shortest kinds of mohair were made into imitation sealskins and plushettes, and in some cases printed with special art designs for curtains and general upholstery. The introduction of mohair crepons was quite a new departure in the manufacture of mohair dress goods fabrics, and although the early forms of mohair crepons seem to have had their day, modifications were still produced, and there was every indication that a permanent trade had been established in this class of mohair manufactures. At the present time, with the exception of a few small manufacturers in America and on the Continent, the West Riding of Yorkshire had the mohair industry in its own hands.

Three Vegetable Fibres—Nettle fibre had of late come greatly into favor in the manufacture of fine yarns and tissues in Germany, where over 10,000 spindles and some 100 workmen were employed. The raw material was imported almost exclusively from China, from which country about 750,000 lbs. were annually sent to Germany. Nettle fibre produced one of the finest tissues obtainable from any known vegetable fibre, and it was intended to introduce the cultivation of the nettle fibre into the Cameroons. The idea was to prepare there the products of that experimental culture, and test them in German factories. Should favorable results follow, it was intended to organize nettle-growing enterprises on an extensive scale.

Continuing, Mr. Garrett said that a new industry had arisen in Ceylon—the preparation of aloe fibre for the market. The commercial name of the product was Mauritius hemp, and it was hoped by those interested that it would take the place of Manilla hemp.

Some years ago an explorer in Asia discovered a plant of silken fibre which was used by the natives for the manufacture of cords and woven goods. The plant, known as the *Apocynum Venetum*, was a sort of bush with slender cylindrical branches, which were sometimes 6 feet high. It grew in Europe, Siberia, Asia Minor, North of India, Manchuria, and Japan, but up to the present had been used only in its natural state. The attention of the Russian Government was called to the plant in 1891, and in 1895 began to use it in the manufacture of bank-notes. The results obtained thus far were considered excellent.

The Silk Spider of Madagascar—One of the most novel exhibits of the colonial section at the Paris Exposition was a complete set of bed hangings manufactured in Madagascar from silk obtained from the halabe, an enormous spider found there. The matter had been taken up by the head of the Antananarivo Technical School, and the results showed that spider silk production should become an important industry. The chief problem was to find a practical process for extracting the silk from the female spiders, and M. Nogue invented a most ingenious appliance for that purpose. The female halabe allowed her silken store to be taken from her in a quiet manner, in spite of the fact that she was distinguished for her ferocity. M. Nogue's apparatus consisted of a sort of stocks arranged to pin down on their backs a dozen spiders. The spiders accepted the imprisonment with resignation, and the silken thread issuing from their bodies was rapidly wound on to a reel by means of a cleverly devised hand machine. Each of the twelve spiders simultaneously yielded from 300 to 400 yards of silk, and as soon

as a spider had yielded all its silk it was replaced by a fresh one, the work of reeling the thread thus continuing with very slight interruption. After having been exhausted of their thread the spiders were set free, and ten days after were ready to undergo the operation again. The silk of the spiders, which was of the most extraordinary brilliant golden color, was much finer than that of the silk-worm. Its power of resistance was remarkable, and it could be woven without the least difficulty.

A Substitute for Jute—A correspondent at Rio drew attention to the fibre of the guaxima, which was found in large quantities on the low lands near the sea. It was believed that that fibre would prove an excellent substitute for jute, which was all imported, and when cultivated be the basis of an important industry. The threads were long and very strong, and would resist the action of water. The process of elaboration of guaxima did not require long maceration in vessels, as was the case with jute, immersion for a few days in a running stream being sufficient to enable the green outer bark to be loosened with the hands. The rods were then exposed to the sun in order to dry the woody parts, which contracted, allowing the fibres to be easily separated.

The Possibilities of Ramie.—Ramie fibre grew wild in India, and recently some experimental farming of the product had been carried on in Queensland. On the whole, however, the results had not been successful. The land did not yield more than half the quantity of fibre per acre that it ought to have done, but the experiments were being continued, to see if it were not possible, by improving the land, etc., to secure more satisfactory results. It had been argued for ramie that it was one of the strongest fibres, and that it could be made into anything that flax, cotton, wool or silk were suitable for. But a Bradford correspondent, writing to Sell's "Commercial Intelligence," stated: "For the sake of planters in our colonies and investors at home, a few words in review of the history and possibility of the ramie fibre may not be out of place. From the manufacturer's point of view, the business career of ramie can only be regarded as catastrophic. No single English firm has yet succeeded in dealing profitably with the material, and it is quite within the truth to say that £250,000 has been irretrievably lost in the attempt. To put comparison with cotton in a nutshell—raw cotton can be made into yarn for some 2½d. per lb., while ramie costs in process at least 1s. per lb. To compare the possibilities of ramie with wool and with silk betrays a complete ignorance of the nature of these two materials. Ramie is harsh and wiry with none of the warmth and softness of wool, or the beauty and pliability of silk. Ramie is much dearer than flax, and has the unfortunate faculty of shrinking when wet. Its lustre is metallic in appearance, and it cannot be dyed to a good black. Some success seems, however, to have attended two firms in Germany, although some half a score of English firms have been ruined in the attempt to do anything with it."

## THEORIES OF DYEING.

Much work has been done of late years bearing upon the theory of dyeing, and a resume of it may be of interest to our readers. The older chemical and mechanical theories have been supplemented in recent times by the solid solution theory of Witt, the osmotic theory of the direct substantive dyeing of cotton put forward by Weber, and Krafft's theory of colloidal precipitates, according to which the color coats the fibre as oil pigments do wood, a rather improbable phenomenon. Many facts urged in support of one or the

other theory of dyeing are perhaps wrongly based on supposed analogies with chemical processes. It is stated, for instance, that wool removes the base from the solution of a basic dyestuff, leaving the acid in solution. It is known, however, that during solution some salts are dissociated into free acid and free base, and if this happens with the basic dye then the wool may absorb the free base without it having really been the cause of its separation from the acid.

Vignon has measured the heat developed when fibres are steeped in normal solutions of acid and bases, and thus showed the inertness of vegetable fibres, compared with animal fibres, but it is not proved that this heat is really heat of neutralization, nor is it possible to make calculations of any value when dealing with fibres the molecular weight of which is unknown.

Weber considers the formation of colors on wool as a chemical process analogous to that of the precipitation of dyestuff solutions by an acetic acid solution of albumin. These latter precipitates may, however, depend on coagulation of the albumen, which then retains mechanically the dyestuffs in the same condition as that in which it exists in solution.

A new chemical theory intended to cover all phenomena of dyeing has been put forward. The dyeing process always takes place in two stages—namely, (1) absorption of the dyestuff, and (2) fixation and development of the color. Absorption: The dissolved dyestuff diffuses from the solution into the fibre. It is not necessary to assume that any attraction by the fibre takes place, for any body held in the water can pass by free diffusion into the fibre. Chemical combination of dyestuff and fibre can scarcely be expected, for the textile fibres are inert substances and undoubtedly of very high molecular weight. They are also colloidal and hygroscopic. Every body which possesses similar absorbent properties can be dyed according to the same general laws, as, for instance, amorphous carbon, coagulable albumen, and certain colloidal metallic oxides. These substances can remove from solution those dyestuffs which dye textile fibres direct. Fixation: The dyestuff which has passed into the fibre by diffusion must now be fixed—that is, it must be transformed into an insoluble dye, incapable of being washed out again. This may take place either by chemical precipitation, as with chrome yellow, indigo blue, etc., or by colloidal precipitation, as with direct dyestuffs. The solutions of many dyestuffs and solutions of color lakes in acids are colloidal in nature, and the precipitation of insoluble colloidal substances from them is accelerated by the presence of the fibre, which by virtue of its structure exercises a catalytic action. As a rule the dyebath is not fully exhausted by such colors, but if the dyes formed by hydrolysis or other chemical change are very insoluble, the equilibrium between the amount of dye absorbed by the fibre and that in the dye liquor is constantly being destroyed, and further amounts of dyestuffs are taken up until the bath is exhausted.

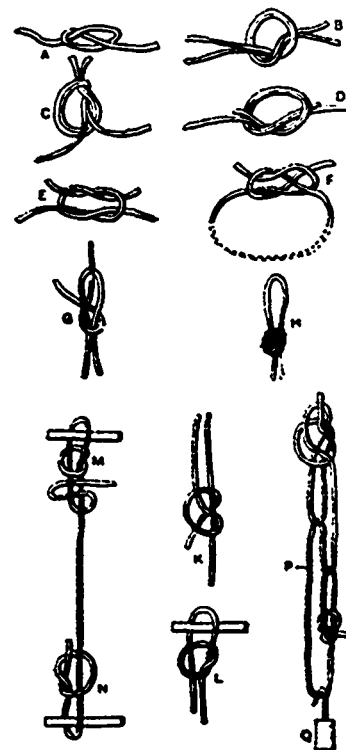
With the salts known as acid and basic dyestuffs, the colors formed on the fibre are the free colloidal color acids or bases. With the direct cotton dyestuffs of high molecular weight and pronounced colloidal character, the colors on the fibre do not differ in chemical constitution from the dyestuffs in solution. These dyes are not fast to washing, since they are readily transformed back to the soluble condition. Dyes which are fast to washing are always produced by some chemical alteration of the dyestuff. The various dyestuffs can be divided into crystalline and colloidal bodies, but the division between these groups is not sharp. Picric acid, for example, is crystalline, but has weak colloidal properties: it dyes wool quickly, but does not give a fast color, and it is incapable of dyeing vegetable fibres. Magenta is colloidal but not sufficiently so to be capable of dyeing cotton direct.

Every substance which assists the colloidal (insoluble) separation of the dye is a useful addition to the dyebath. For this purpose acids are often added, while dyeing is seldom done in an alkaline bath, since alkalis tend to bring colloids into solution, when they cannot be absorbed by the textile fibres.—Textile Mercury.

### WEAVERS' KNOTS.

The round knot is either single or double. The single knot A is but rarely used, and then it is employed for preparing a loop or to hold another knot. The double form B joins two ends, and is sometimes used by silk weavers in threading shuttles. In the ordinary knot formed on the finger tips, C, the ends of the threads project in the same direction. This knot, which comes wholly on one side of the thread, is frequently caught by the reed and the heddle eye, and it is best to use that shown at D, where the two ends project in different directions, thus distributing the knot more around the thread so that it passes more easily through the heddle eye and reed than the preceding knot. These two knots (C and D) are used for splicing warp threads; the first when the yarn is fine and the reed coarse; the second when the yarn is coarse and the reed fine.

When the warp threads are either double or three-ply, and one of the single strands breaks, it is not drawn through the heddles and reed, but is simply twisted around one of the other strands, as shown at K.



The flat knot shown at E is used when it is desired to tie two ends which are to be subjected to considerable strain, such as the lacing of jacquard cards. A weaver's knot is shown at F, which is frequently used in putting new heddles into the jacquard loom and for similar small cords. It is, however, says "Les Metiers a Tisser," less secure than the preceding one E, and is formed by the finger and thumb-nails; it can be quickly tied, and there is the additional advantage that it can be formed very close to the end of the thread. The knot shown at G is used more especially to fasten the harnesses. A running knot is shown



at L, which is used when it is desired to connect two parts at a variable distance by means of one cord. When the length is determined, the cord is fastened by a second knot shown underneath the knot at M. Another knot is shown at N, which is frequently used in mounting harnesses on silk looms; a two end knot is shown at H. A knot called the pulley-tackle knot is shown at P, and is used for the suspension of harnesses, large reeds, etc. This ingenious arrangement enables the position of the suspended body to be easily adjusted. By pulling the end P downward the weight Q is lowered, and by pulling the end P up this weight is raised.—Textile Manufacturer.

### THE PARKS COTTON MILLS, ST. JOHN.

The Parks cotton mills at St. John, N.B., on which there was a pretty heavy mortgage, and which have been closed for some time, were put up at auction recently, and sold for \$145,000. The mills form one of the old established industries of St. John, and when running full capacity gave employment to between 500 and 600 hands. The property originally cost about \$1,000,000, and allowing for depreciation is worth \$250,000, so that it was bought at a bargain. When offered for sale the first bid was \$100,000, by Mr. Mitchell, on behalf of Ontario capitalists. Bids were made by A. G. Blair, C. N. Skinner, and A. H. Hannington. Mr. Mitchell dropped out, then Mr. Blair, and finally they were knocked down to Mr. Hannington at the figure named. It was the impression that Mr. Hannington, who is a lawyer, represented the cotton combine, but it was subsequently given out that he purchased for James F. Robertson, of the firm of Manchester, Robertson & Allison, a local firm, which announcement gave great satisfaction, as Mr. Robertson stated that his idea was to re-open the mills and run them with St. John capital. Mr. Hannington also has an interest in the purchase.

Steps have been taken to organize a strong company and already a considerable amount of stock has been subscribed. Notice of application for a charter has been given in The Royal Gazette, the company to be known as the Cornwall and York Cotton Mills Company, Ltd., with a capital of \$500,000, divided into 5,000 shares of \$100 each. The applicants are, James F. Robertson, merchant; James Manchester, banker; Geo. W. Jones, brewer; Wm. H. Thorne, merchant, and A. H. Hannington, barrister, all of St. John.

Application has also been made to the city council for remission of arrears of taxes, some \$3,000 or \$4,000, and exemption for ten years and free water. This will probably be granted.

Although the capital of the proposed company is stated in the application to be \$500,000, it is evidently the intention to raise only \$300,000 at present. Of this amount the sum of \$145,000 will be required to pay the purchase price, \$40,000 for repairs, etc., and the balance for working capital.

The intention is to operate both mills to their full capacity. Between 500 and 600 persons will be employed, and about \$2,500 a week distributed in wages. Goods will be made for both the home and foreign market. Already an offer has been received from a reliable firm to take three thousand bales of goods every month, and this will be sufficient to keep both of the mills running night and day.

Miss Margaret J. Parks claims to have a lien on all the property under the terms of the will of the late Wm. Parks, which granted her \$2,000 a year. The Bank of New Brunswick claims the ownership of all the goods in process of manufacture, but these claims will be readily adjusted.

The closing of the mills last winter caused serious em-

barrassment to the operatives and others in St. John, and their re-opening, especially if the control remains in the hands of local business men, will give much satisfaction.

### ARTIFICIAL BLACKS FOR GREY MIXTURES.

Grey mixtures known as Hessian grey, old grey, etc., are considerably used, and as long as they were produced solely with logwood black, the process remained fairly simple, and success was pretty certain if the usual processes were carried out with ordinary care. Since, however, the black coal-tar dyes have won their way, many dyers have abandoned the use of logwood altogether, and the production of grey mixtures can be carried out more cheaply, although with greater difficulty. None of the usual blacks, even Alizarine Black, can bear vigorous washing and milling in contact with white, without bleeding into it. The extent to which this takes place depends on many circumstances—the purity of the wool, the care taken in the dyeing, the duration of the milling, the strength of the lyes used, etc. Nevertheless, the colors when finished look finer and brighter than those got with logwood. The worst, however, that logwood black does in the milling is to stain the white slightly yellow. It never makes it blue or black as the artificial dyes do, as the chroming never has the same effect on them that the iron mordant has on the hematoxylin.

Usually directly produced and after-chromed black colors, with artificial dyes, are faster than when the goods are mordanted first, but the best plan is to mordant first and chrome afterwards, and the use of lactic acid in combination with sulphuric can be recommended. In case the bluish shade given to Alizarine Black by lactic acid is objectionable, it can be avoided by adding Mordant or Anthracene Yellow. No success has attended attempts to use iron and copper with Alizarine Black, although they answer with logwood. Even now, for certain grey mixtures, especially the lighter shades, recourse must be had to logwood.

Shading with coal tar blues should be avoided, as they blend even more than the artificial blacks, especially Alizarine Cyanine and Anthracene Blue. All the trouble with artificial dyes becomes much greater if the wool is not scrupulously clean. It is best to do blue shading by mixing indigo-blued wool with the fabric.

One more difficulty with artificial blacks is the liability to the formation of long dark streaks. These are not due to bleeding, nor to concentration of the dye in folds during the milling. They are developed by the raising where there have been folds in the milling. It is a fact that grey mixtures look lighter after raising and finishing owing to the white threads being brought more to the surface. Then if creases are produced by careless milling, they form places less affected by the raising than the rest of the fabric, and the white threads are brought less into evidence along them. Hence they appear afterwards darker than the rest of the surface, the same thing can therefore, and sometimes does, happen, when logwood is used.

If milling folds are few they can be got rid of by soaking in hot water and drying in a stretched state, after milling, but before raising, the cards then act evenly over the whole surface. The process is, however, naturally attended with the disadvantage of causing bleeding into the white, if artificial blacks have been used. Hence these dark streaks supply an argument against the use of coal tar blacks rather than logwood. In short, a decision between logwood and artificial black must depend on the special circumstances of each particular case.—M. H. in the Oesterreichs Woolen und Leinen Industrie.

**MONTREAL COTTON CO.'S GAULT MILL.**

Last year the Montreal Cotton Co. purchased the Bantin paper mill property at Valleyfield, on the opposite side of the tail race from their old mill. The paper mill buildings have been demolished, and a new addition to the cotton mill erected, which has been named the Gault Mill, after A. F. Gault, president of the company. The new mill, now ready for the machinery, will increase the capacity of the works about 25 per cent. The present development is for 36,432 spindles, of which 18,000 are mule and the remainder ring spindles, and for about 900 looms. The buildings consist of a spinning mill 318 ft. long by 116 ft. 4 in. wide and three stories high; a weaving mill 318 ft. long by 102 ft. wide and three stories high, and a dyehouse 68 ft. long by 102 ft. wide, one story high. The machinery is so arranged that the cotton comes in at one end, and the stock keeps moving forward until it is woven, and the cloth is then taken across to the old mill for finishing.

The mills are driven by water power. The old canal which served the paper mill has been widened and deepened to an extent sufficient to supply water for 2,000-h.p. with 11 feet head. The present addition will require about 1,000-h.p., and it is expected that the present mills will ultimately be extended to double their capacity, thus requiring about 2,000-h.p.

A large amount of steam is required for heating, dyeing, pressing and finishing. In order to avoid teaming all the coal, and to get a larger boiler capacity, four new coal pockets and a boiler house have been built next to the Gault mill, where the steam for the entire mill will be generated. The chimney is over 200 hundred feet high, and like the mills is built of red pressed brick. There is room in the boiler house for 14 boilers, but 7 only will now be required. The coal pockets have a capacity of 4,000 tons each.

The buildings are fitted throughout with a blower system of ventilation and heating, electric lights and fire protection. There is an ingenious arrangement by which an alarm of fire given by pressure on a lever will not only stop all the machinery in the building but also by the same action divert all the force of the turbine to a huge fire pump.

Nearly all of the textile machinery has been purchased in England. The general contractors for buildings are Wighton, Morrison & Co., Montreal. All of the smaller contracts for machinery and materials have been placed. Fred. Lacey, manager, has had general charge of the planning and construction of the new work.

The inauguration of the new mill took place a couple of weeks ago. In the afternoon a dinner was given at the Larocque House, at which the directors presented the president, A. F. Gault, with a silver trowel in commemoration of the erection of the buildings, the corner stone laying being an imaginary affair, as the buildings were practically completed and ready for the machinery. In the evening two flats of the mill were given up to the visitors, who must have numbered thousands. The Valleyfield brass band, an orchestra and a piper from Montreal furnished music. Addresses were delivered by Mr. Gault, M. Emard, Bishop of Valleyfield, and others. The latter referred to the beautiful new building as evidence of the prosperity of the company and the town, and the success achieved was also partly due to the industry of the working classes. The occasion might be called a feast in honor of labor and capital. Such events suggested a solution of the social problem. Men were wanted who would invest their wealth in labor-giving enter-

prises and men were wanted who would work industriously and soberly under reasonable conditions.

The machinery will be placed in the new mill at once and the whole will be in operation in a short time.

**TREATMENT OF DYEHOUSE ACCIDENTS.**

Accidents that are most likely to occur in dyehouses, bleach and chemical works, may be divided into two general classes, viz.: burns, scalds, etc., due to heat and acids, and poisoning, due to the accidental swallowing of some of the chemicals used in the works.

The first group, burns, are, no doubt, the most painful, and should be treated without delay. If the burn is caused by a splash of strong acid, such as oil of vitriol, the parts affected should be at once freed from any clothing, and at the same time large quantities of water should be poured on, the object being to wash away from both the clothing and afflicted parts all traces of acid.

If the acid has covered a large surface of the body, the injured party should be immediately put in a tub or vat containing water, and his clothing removed while in the water. Bad, or extensive burns from acid should be uncovered with great exercise of caution, and it will be found desirable to cut the clothing and lift it off the person, in preference to drawing it off as is usually done.

After being assured that all traces of acid are washed away, the injured parts should be treated with raw cotton (if absorbent cotton is not at hand), soaked with water containing a very small amount of ammonia or bicarbonate of soda; this is to make absolutely certain the destruction of any acid.

Following this, the afflicted parts should be covered carefully with lint soaked in olive oil. Of course, it is supposed that in all cases where a severe accident has occurred, a physician has in the meantime been sent for. A frequent accident is splashing of corrosive liquids, acids, alkalis, etc., in the eyes. The immediate and continued application of cold water should be at once made until the arrival of a physician; the eye is too delicate an organ to be trifled with.

Burns from contact with hot coals, heated steam pipes, escaping steam, etc., should be at once treated with linseed or olive oil, applied preferably on lint, after uncovering the afflicted parts so as not to break the skin. A very useful preparation for all factories to have on hand is the simple mixture of linseed oil  $\frac{1}{2}$  gallon, and lime water  $\frac{1}{2}$  gallon, for immediate use. This should be shaken, and applied by pouring on the afflicted parts, and spreading with soft cotton, finally covering with lint. Another formula for a similar preparation is, olive oil  $\frac{1}{2}$  gallon, lime water  $\frac{1}{2}$  gallon, salol  $\frac{1}{2}$  ounce—this is applied in the same way.

In the absence of any of the above, it is well to have in mind that bicarbonate of soda (baking soda), white of eggs, whitening, or even paint, are excellent.

In case of poisoning, induce vomiting at once, by large draughts of hot water, strong mustard water, or by swallowing olive oil, or white of eggs. It is well to know that butter is one of the most useful antidotes for poison, not only soothing, but efficacious as an emetic. Administer it like oil, and give large doses. If acids are swallowed, give soap suds, magnesia or lime water. Soap suds are always handy, and should be forced, if necessary, into the stomach. If alkalis are swallowed, give vinegar or lemon or lime juice diluted with water. In cases where iodine, tartar emetic, or antimony salts are accidentally taken, administer (for iodine), starch and water, and for antimonial salts, infusions of tannic acid. A case of tartar emetic



poisoning was immediately treated by the writer with a large dose of sumac liquor from a mordanting tub. Lead, copper, mercury, iron and cobalt salts, such as sugar of lead, bluestone, corrosive sublimate, copperas, etc., are best treated by the quick administration of soap suds and mucilaginous drinks, such as thinned gum tragacanth paste, or thinned gum arabic mucilage, much used in textile mills. Under the general name of bug poison is to be included the salts of the metals above mentioned, and they can be treated as above suggested.

There are some classes of "poisons" for which there is no direct neutralizing antidote, such as chloroform, ether, chloral, etc. The most urgent means to adopt is to induce respiration; dash cold water on the head and chest. If poisoning is due to alkaloids, such as opium, morphine, soothing powders, etc., give a hot bath, and apply hot cloths to the stomach, at the same time administering strong black coffee, and keep the person awake and always moving until the physician arrives. In all cases of poisoning or of bad burns or scalds, whether in the mill, office or at home, send some one at once for the physician. The preceding notes are solely for immediate use, as the first few minutes of sensible application of proper antidotes will materially reduce the chances of subsequent complicated seriousness, and probable fatality. Don't get excited, send for the physician, and administer the proper remedy.—The Review.

### DURYEA AUTOMOBILES.

The J. Stevens Arms & Tool Co. are about to enter on the manufacture of automobiles at Chicopee Falls, Mass. The pattern carriage which they will turn out is the Duryea, the inventor of which is to be in charge of the works. The first lot of 50 will, it is expected, be placed on the market by March 1, 1902. The Duryea, or as it will hereafter be known, the Stevens-Duryea, will be equipped with a 5-horse-power double cylinder, horizontal motor, of the four-cycle type. The transmission will be by gearing, with three speeds and reverse. Intermediate speeds can be secured by throttling the lever. The operation is simple. A prominent feature is that the

new carriage is believed to be assured, but the Stevens company are going moderately at the work, that the same thoroughness may accompany this as in the other branches of their business.

## Among the Mills

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

The Canada Woolen Mills at Carleton Place have gone on three-quarter time.

The Canadian Colored Cotton Mills Company declared a dividend of 1 per cent. for the past quarter.

James Wilson has been elected a director of the Dominion Cotton Co., to replace C. R. Whitehead, who remains manager.

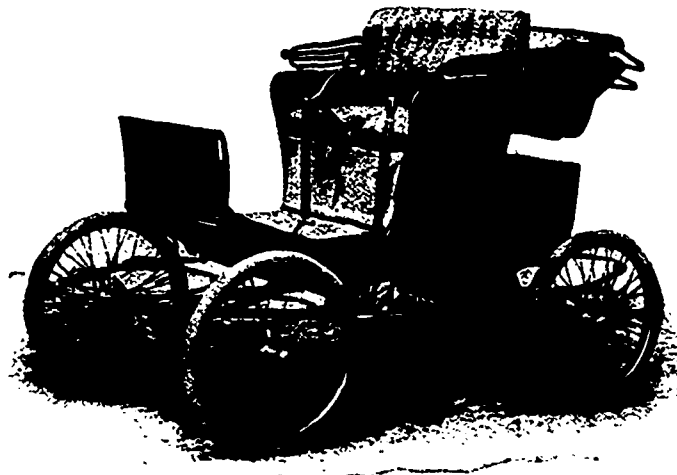
The Westport Woolen Mills have closed after a very successful season. The mill has been making blankets for some time.

The addition to the Anchor Knitting Mill at Almonte, now nearing completion, will increase the capacity of the mill by about one-half.

The rubber boot makers in the employ of the Canadian Rubber Co., Montreal, went out on strike, being dissatisfied with their wages.

Georgetown has voted a bonus of \$10,000 and other inducements to Arnold Bros., glove manufacturers, who will remove there from Acton, where they find themselves unable to compete with W. H. Storey & Son, in the way of securing help, etc.

A sale of 160 bales of wool, 43 bales of rags and 6 bales of yarn, on account of whom it may concern, took place at Henderson's auction rooms, Toronto, on 21st October. They were sold in one lot, and brought \$4,100. Mr. Wilson was the purchaser.



machine requires no additional water for making a trip. With other machines this is a common fault. It is also guaranteed that the water will not freeze, chemicals being used as a preventive. Steam carriages are said to consume a gallon of gasoline in from 7 to 10 miles of travel, but the Duryea consumes but one gallon in each 30 miles. The success of the

The Dominion Cotton Mills Co. passed its last dividend. The money will be used to decrease its indebtedness. The present board of managers is composed of the following: A. F. Gault, president; Jacques Grenier, vice-president; Hon. L. J. Forget, Samuel Finley, S. H. Ewing, C. E. Gault and James Wilson. C. R. Whitehead is general manager.

The present output of pulp of the Sault Ste. Marie Pulp and Power Company's mills is being shipped to Europe.

An effort is being made to establish at Binghamton, N.Y., a mill to manufacture print goods under a new process, which is simple, and by which goods of great beauty can be produced at low cost.

Two of the five unions—the spinners and loom fixers—among the mill operatives at Fall River, Mass., voted against a strike a few days ago, and what threatened to be a prolonged struggle was averted.

In consequence of the contractors for the new addition to the Montreal Cotton Co.'s mill at Valleyfield having broken the water-main the water was cut off from the mills, and the mill with its 2,800 hands was idle for some days last month.

Guy & Lefebvre have started a carding mill at Edmonton, N.W.T., in connection with a tanning business. They tan cowhides, sheepskins and furs, and card wool into small rolls for spinning or into mats 24 inches wide for use in mattresses, quilts and spreads.

At the annual meeting of the Montmorency Cotton Co. held recently, the statement presented, though satisfactory, was not so good as for the previous year. This was attributed to a strike, the scarcity of labor, and the delay in providing new machinery by the contractors. At the close of the meeting an inspection was made of the premises by about twenty shareholders who were present.

The opening of the Streetsville Woolen Mills by A. W. Brodie is likely to result in renewed activity at that village. During his stay in Hespeler the population rose from 700 to 2,700, and in his last year when Reeve, he was instrumental in adding a municipal electric light system, cement walks and other improvements to the town. A number of his former employees are finding their way to Streetsville.

John Moodie, jr., of Hamilton, has a suit before the courts, asking to be re-instated as partner with his brother, J. R. Moodie, in the Eagle Knitting Company. The plaintiff agreed to retire and to take for his half-interest a sum based on an equitable valuation of the business. Defendant took possession, and plaintiff's share was estimated at \$187,000. This amount is not considered satisfactory by the plaintiff.

A strike took place at the Montreal Cotton Co.'s mill at Valleyfield recently. A workman, named Thiverge, was guilty of a breach of the rules, and absented himself without due permission, being also guilty of disrespectful language to the foreman. When he returned he found himself suspended. The other employees in the department, some 30 in number, then struck. The matter was subsequently settled, the principal offender having apologized. W. Mackenzie King, of the Department of Labor, Ottawa, visited the scene and assisted in the settlement.

It is pretty well decided to erect a grey cotton mill at Shawinigan Falls, Que. A site has been secured, the plans adopted and all the preliminary arrangements made. It will be closely associated with the Colonial Bleaching and Printing Co., who will use some of its output in their print works. The latter company is building an addition, 140 by 64 feet, three stories high, to their mill at St. Henri. On the ground floor will be installed more callandering and beetling machinery, while some new machines for finishing fancy goods, not hitherto turned out by them, will be one of the important features of the extension. The two upper stories will be devoted to storerooms.

Main's rope works, Hamilton, suffered by fire to the extent of \$13,000. Insured for \$7,500.

A branch of the Canadian rubber works at Notre Dame street, Montreal, was damaged by fire to the extent of about \$5,000.

It is stated that the Montreal Cotton Company will devote its usual six per cent. dividend towards reducing its debt.

The Toronto Carpet Co. is about to install in the new addition to their factory, two sets of cards for spinning yarn for use in their manufacture of carpets.

The Peterboro Underwear Co.'s mill, which was shut down for some time, has been sold to A. H. & W. A. Stratton, who have commenced operations again.

E. N. Burrows, formerly of Guelph, and T. Dumont, of St. Thomas, have made a proposition to the council of Goderich to establish a carpet factory. They offer to erect a factory, 24 by 40 feet, a boiler house, 24 by 14 feet, and a dyehouse, 16 by 42 feet, at a cost of \$5,000.

The differences between the Lloyds and the Sturgeon Falls Pulp Co., which again broke out while the arbitration was in progress, have been again settled. The company will now go on and complete the mill, and expect to turn out from 100 to 120 tons of pulp daily.

M. Greenburg & Son, 1757 Notre Dame street, Montreal, have bought the machinery and stock of the late firm of J. & G. H. Young & Co., knit goods manufacturers of Montreal. We understand the machinery is being disposed of and the factory will not be started again.

The woolen manufacturing business, formerly carried on at Walkerton by Rife & Co., is now conducted by Cargill, Rife & Co. They have erected a new building, into which the machinery of the old mill has been moved, and some new machines added, considerably extending their facilities.

The Streetsville Woolen Mills, recently re-opened by A. W. Brodie, after a shut down of two years, are busy on blankets, tweeds and yarns. The carding and spinning departments are running day and night. The following are in charge of the different departments: A. W. Brodie, manager; Aug. Knoepfli, designer; John Wenman, carder; Henry Miller, boss weaver; R. Davey, finisher; Mac. McKenzie, dyer; Alex. McKenzie, spinner; William Holdaway, night carding; John Fligg, night spinning.

On application of ten shareholders of the company, Judge McDougall, of Toronto, has issued an order appointing E. R. C. Clarkson interim liquidator of the Western Canada Woolen Mills Company, Ltd. The company was organized with a capital stock of \$125,000 of which \$30,000 was subscribed and partly paid up. The head office was in Toronto, H. C. Fortier being president, and Thomas Kennedy, secretary. The mill was at Medicine Hat, N.W.T., but there was only a building without machinery. An effort is now being made by local people to form a company, acquire the charter (a Dominion one), and set the mill running.

The ratepayers of Galt on Oct. 31st carried the by-law to grant a loan of \$7,000 to the Royal Carpet Co., which proposes to remove from Guelph to that town. The by-law was submitted about a month previous, when the vote stood 600 for and 58 against, but a majority on such questions not being sufficient, the number of votes in favor fell about 60 short of what was requisite. As the ratepayers were clearly in favor of granting the loan the council agreed to submit the by-law a second time, when it was carried, on a vote of 728 to 75. The industry will therefore go to Galt. H. H. Burrows is manager.

The St. John's Straw Works Co. has been incorporated with a capital of \$75,000.

A combination of the underwear woolen mills of the United States is in process of formation.

The Dodge Manufacturing Co., of Toronto, has issued a booklet on Power Transmission Economics, describing their brackets, hangers, clutches, couplings, etc., which will be found of interest to mill owners.

In addition to the manufacturing department, the Strathcona Rubber Co., of Montreal, are installing a plant for the proofing or rubberizing of the cloth, something which waterproof clothing manufacturers have not yet done.

### FABRIC ITEMS.

Wm. Ross, hatter, of Halifax, offers to compromise at 35 cents on the dollar.

The British Columbia Pulp and Paper Co., Ltd., has been incorporated with a capital of \$500,000.

R. W. O'Brien & Co., Collingwood, raw fur dealers, have built a new store for their business, 150 by 22.

The cordage market has developed considerable strength recently. Sisal rope went up  $\frac{1}{2}$ c., and lath yarn  $\frac{1}{4}$ c. per lb.

A. Leadley, of H. & A. Leadley, Winnipeg, has been out to the coast and has made extensive purchases of hides and wool.

Henry Moorhouse, an old resident of Perth, is dead. He was at one time actively engaged in the woolen business, and was interested in mills at Glen Tay.

Arrangements have been perfected for the establishment of a Canadian branch of the Society of Chemical Industry of Great Britain. There are already 30 members of the society in the Dominion.

A very comfortable felt boot for driving in cold weather is made with heavy felt soles and tops to come to the tops of the boots. Worn over the top of the boots they can easily be slipped on when one wants to leave the carriage.

The presence in Canada of several buyers from Bermuda has caused some speculation as to the possibilities of trade with that colony. It is stated that a good business might be done in such fabrics as fine clothing, neckwear and umbrellas.

Thomas H. Radford, Alfred Roy, Edward M. Roberts, John James Roberts and David Yuile, all of Montreal, have been incorporated under the laws of Canada, as the Radford Paper Co., Ltd., with a capital of \$200,000, for the manufacture of pulp and paper.

William Cameron Hutchison, office manager for McKenna, Thompson & Co., wholesale clothing manufacturers, Montreal, has been missing for about a month. Neither his family nor his employers know any reason why he should depart.

The Standard Carpet Co., Forest, Ont., has been incorporated with a capital of \$40,000, to manufacture carpets, etc. The provisional directors include Andrew McGregor, John Walsh and James Auty, of Guelph, and N. C. McPhail, Toronto. Their factory is now being built, of brick.

There is a growing belief among wash goods men that linen crashes are to regain some of their old-time popularity during the season of 1902, especially for seaside and mountain wear. Wool crashes are likely to be in demand as well, and crashes which simulate in weave and effect pongee silks will be popular.

A loom clock has been perfected by J. F. Yates, of Paterson, N.J., which measures the warp as it goes off the loom, and has the advantage of being constantly under the eye of the operator.

Notice is given that Alfred Augustus Loeb, of Philadelphia, Pa., is carrying on business alone in Montreal, under the firm name of Loeb & Co., importers, manufacturers' agents and commission merchants.

The Manchester cotton spinners have decided to establish a spot cotton bureau, really a rival of the Cotton Exchange of Liverpool, the methods of which are described as antiquated and as opposed to the Manchester buyers.

The ladies of St. John, N.B., presented the Duchess of Cornwall and York with a mink and ermine collar and mink muff, the collar ornamented with sable tails and gold clasps, with the Royal standard and New Brunswick coat of arms. The set was enclosed in a handsome silver birch box, lined with satin and silver mountings.

The Campbell Manufacturing Co. Ltd. has been incorporated under the laws of Canada for the manufacture of clothing and clothing supplies. The capital is \$75,000, and the head office is at Montreal. The incorporators are: F. R. Lanigan, George P. Butters, Benjamin W. Beyer, William H. Butters and John W. Blair, all of Montreal.

The firm of Caverhill & Kissock, wholesale millinery dealers, Montreal, has applied for incorporation, the name of the company to be the Caverhill-Kissock Company. The capital is \$300,000, and the applicants are: J. B. Caverhill, William Kissock, A. S. Robertson, G. W. MacDougall and W. J. Henderson, the first three named to be the first directors.

John Watson, of the firm of Lailey, Watson & Bond, wholesale clothing manufacturers, Toronto, died last month. He had been in business in Markham, Cookstown and Barrie, and sixteen years ago came to Toronto, and entered into the wholesale business of manufacturing clothing with William E. Lailey. He was a native of Aberdeenshire, Scotland.

Notice is given of application for a charter of incorporation for the Truro, N.S., Knitting Mills Company, Ltd., with a capital of \$300,000, divided into 3,000 shares of \$100 each. The applicants are John Stanfield, Frank Stanfield, Dr. Harold M. Stanfield, Lydia Stanfield, Emma Maria Stanfield, Frances Jane Stanfield, Annie Emily Stanfield and George L. Fisher, all of Truro. John Stanfield, Frank Stanfield and George L. Fisher are to be the first directors. The object of the company is to carry on the manufacturing of all descriptions of textile fabrics. E. M. Fulton, of Truro, is solicitor for the applicants.

The Boston Rubber Shoe Co. has succeeded in an action, in the Exchequer Court of Canada, against the Boston Rubber Co., of Montreal, for infringement of a trade mark. The plaintiffs were incorporated in 1853, their head office being in Boston; the defendants' company was formed in 1896, with head office in Montreal. The similarity of the name adopted by the latter is apparent. The defendants alleged that the imitation must be shown to be fraudulent, but the judge held differently, and expressed his view in these words: "Imitation involves knowledge; and if one, by a trade mark attached to his goods, knowingly imitates another's trade mark, I do not see very well how he is to expect a court to find that the thing is done innocently." That is, the mere imitation implies a fraudulent usage of the mark, and the actual sale of the goods to the public implies the intention to deceive.

A combination of the cotton mills in Mexico is being formed.

The Standard Shirt Co. has been allowed to increase its capital stock from \$300,000 to \$1,000,000, and has been granted enlarged powers.

Alfred Dolge, formerly a felt manufacturer of Dolgeville, N.Y., whose felt shoes are universally used for winter wear in the northwestern parts of America, has gone into bankruptcy at Los Angeles, Cal.

Leopold Cassella & Co., of Frankfort-on-the-Main, Germany, have issued a card of samples of dyeings on woolen goods with ramie effects. They look well. Wm. J. Matheson & Co. carry a stock at 96 and 98 Foundling street, Montreal.

A new cloth which promises to sell freely is known as Enfir, a cloth with a bright panne finish, which gives it somewhat the appearance of satin. It is waterproof and unspottable. This patent finish is done on such cloths as satin cloth, Soleils, venetians, broadcloths and Amazon cloth.

The T. Eaton Co., finding it difficult to procure sufficient help in Toronto, has opened a branch in Hamilton, where a part of their manufacturing of clothing will be carried on, employment being given to 300 or 400 tailors and tailoresses at once. The warehouse of James W. Simpson, on Rebecca street, has been secured.

Molybdenite, or sulphide of molybdenum, about which a good deal has been said lately, and which is reported to be found in Canada, is used not only for hardening steel but for making molybdic acid and other commercial chemicals, some of which are used in dye works. Present production does not equal the demand and market values run from 10 cents to 30 cents per lb.

The Montreal Shirt and Overall Company, of Montreal, is applying for incorporation, with a capital of \$35,000, to take over the business of the Montreal Shirt and Overall Company, and to carry on the business of manufacturing and selling shirts and overalls, men's and children's clothing, and of general dealers in dry goods. The applicants are: Samuel Roman, Herbert E. M. Levine, William Roman, Marcus Roman and Sidney Levine, all of Montreal.

C. E. Sontum, Government commercial agent for Canada in Norway and Sweden, has just sent in his official report to the Department of Trade and Commerce at Ottawa. He says the scarcity of water is seriously curtailing the output of pulp, as well as other timber. Similar reports have been received from Germany and Austria. As a result Mr. Sontum remarks that the price of pulp has advanced. He cites a sale of 400 tons of moist Scandinavian pulp at \$10 a ton f.o.b., for delivery in Germany. The cellulose manufacturers of Europe have agreed to restrict their output. This should tell in favor of Canadian pulp.

Advices from manufacturing centres indicate a good demand for woolen goods of Canadian make for both women's and men's wear. Mill owners say that the increase in business in this particular line is simply marvellous. Such goods as friezes and homespuns are only limited in their sale to the ability of the mills to turn them out. Cheviot tweed suitings are being largely taken for fall and spring wear. In overcoatings the demand is for greys with rough and smooth finish. With regard to prices it may be said that there has been an advance in some of the finer lines of Canadian made woolen cloths. Plain bright-colored goods promise to be in favor for next spring. The prevailing colors are castor, fawns, browns, hussar blue, bright navys, cardinals, black and greys. A matting or canvas cloth effect will be popular.

Andrew N. McDowell, of Montreal, has withdrawn from the Canadian Wrapper Manufacturing Co. The firm is now composed of Louis Lipschitz and Abraham Saunders.

### LITERARY NOTES.

With its November number *The Century* begins a Year of American Humor. Appropriately enough, it contains a twenty-page "Retrospect of American Humor," by Prof. W. P. Trent, of Columbia University, with portraits of Lowell, Warner, Holmes, Harte, Hay, Artemus Ward, Mark Twain, Stockton, Harris, Bunner, Field, Bill Nye, Riley, F. P. Dunne, George Ade and a score or so of others who have successfully sought to tickle the risibilities of the American people. The humor in this issue of the magazine includes "Two Little Tales," by that most famous of living fun-makers and satirists, Mark Twain; "Songs of the Cheerful People," by Paul Dunbar; "Mr. Appleby's Vote," by Catharine Glen; "The Indiscretion of John Henry," a story of a woman's club, by Walter Sawyer; "More Animals," in picture and verse, by Oliver Herford; another of "Patrolman Flynn's Adventures," by Elliott Flower; apothegms by Carolyn Wells, and three full page pictures of Don Quixote, as he appears to Andre Castaigne, Howard Pyle and A. I. Keller respectively. Much of the present number is devoted to the causes and consequences of the tragedy at Buffalo. "The Assassination of Kings and Presidents" is a discussion of the mental and moral questions involved, by the Rev. Dr. J. M. Buckley, author of "Faith-Healing, Christian Science," etc. The Secretary of the Navy, the Hon. John D. Long, contributes "Some Personal Characteristics of President McKinley."

A climax to a year of remarkable advancement is *The Delineator* for December, between the covers of which is contained a rare collection of special features of varied interest. The winter fashions are pictured and described in detail; there is a delightful article on the Floral Fetes of Japan, illustrated in colors; the home surroundings of several stage favorites are entertainingly presented and described; there are three splendid stories by well-known authors, together with illustrated articles on holiday fancy-work, and home-made gifts; new recipes, entertainments, and a wealth of other material of a seasonable nature, devoted to the pleasure and profit of every member of the household.

The Canadian Magazine for November contains a number of very good pictures of the Duke's tour through Canada, with a few glimpses of His Royal Highness' personal peculiarities, by Joseph T. Clark; and an account of the tour by Norman Patterson. Gen. Stewart gives a character sketch of Archbishop Begin, of Quebec. Among other notable articles are "City Government in Canada," by S. Morley Wickett, and "What the Church Lacks," by the Rev. C. A. Eaton, late of Toronto, now of Cleveland.

The Ladies' Home Journal is going to both puzzle and reward its readers. Each month it is to present a page to be called "The Journal's Amusing Puzzles." This page will contain a certain number of small pictures, each one of which will represent the name of some well-known State, flower, historical character, etc., and for correct solutions of these pictures substantial rewards will be given. Some of the cleverest artists in the United States have been engaged to carry out this idea.

The October number of the Prince Edward Island Magazine contains among other articles, an account of the settlement at St. Peter's Harbor, another instalment of John MacSwain's

notes on native birds of the island, and the conclusion of Hon. A. B. Warburton's criticism of the school system. There is also an appreciative sketch of Robt. Ferguson, the Edinburgh poet, by H. V. Ross. The editor in one of his notes mentions the interesting fact that there are 145 John McDonald's in King's county, P.E.I., and wonders if another Sir John McDonald will spring from among this large family.

Max Jagelhuber, formerly editor of the Dry Goods Bulletin, has commenced the publication of a new monthly in New York, to be known as Dry Goods. He announces that it is to be "different from others." The initial number promises well.

### PERSONAL.

Belcher & Irwin, corset manufacturers, Toronto, have been succeeded by Belcher & Snider.

Wm. McCausland, vice-president of the Continental Costume Co., Toronto, was presented with a Crown Derby dinner-set on the occasion of his marriage.

James Slessor, one of the directors of the W. R. Brock Co., wholesale dry goods, had a slight stroke of paralysis while in England. It is not considered serious.

Samuel Law, of Cleckheaton, England, head of the firm of Samuel Law & Co., manufacturers of card clothing, who give employment to 500 hands in their business, is on a visit to Canada. Mr. Law is largely interested in the Grand Trunk, and is a heavy investor in Toronto city bonds. He attended the manufacturers' meeting in Montreal.

### THE WOOL MARKET.

Both quietness and activity have characterized the wool market of late, quietness in some centres and great activity at certain points in the United States, notably Boston, where, for the first week of November, the largest movement known in the history of that market is recorded. The sales in the United States for the week are estimated at 25,000,000 lbs. In fact four-fifths of this amount changed hands within two days. The bulk of this business was done in Boston, which is now probably the second largest wool market in the world, but Philadelphia contributed its share, although the bulk of the business was done by a few of the largest holders. The mills were the largest buyers, which probably means that they are full of orders. The demand still keeps up well. This activity does not necessarily mean stiffer prices. Probably on a few choice staple and fine clothing wools something of an advance may have been obtained, but for the most part sales reflected no upward movement in prices; on the contrary, a portion of the purchases were on terms favorable to buyers. Values generally are as at last quotations.

Advices from abroad indicate the continuance of a firm market, and that desirable stock, such as America uses, is scarce and high. Top prices are quoted from London and the sales in Melbourne. Advices from Antwerp, as well as from Buenos Ayres also indicate an actual advance of about a cent per pound in the price of wool. The Buenos Ayres clip will probably show an increase of 10 per cent. and the quality is reported good.

Latest advices from England state that there is a good chance for dealers to make money. Prices are on a safe basis, and an early advance is likely. Quotations are: Super Irish wethers, 6¼d.; selected, 5¾d.; Lincoln wethers are low, 5¼d.; Lincoln hogs, 7¾d. 40s tops can be bought at 7½d. and 60s; Botany tops at 19¼d.

In Montreal fine wools are very firm, although no ad-

vance has been made. They are selling freely at last week's quotations. Capes, from 13½ to 15c., according to quality and condition. Washed B.A. from 26 to 32½c.; scoured, 33 to 35c.; Australian greasy, 16½ to 20c.; Northwest, 13½ to 15c., with very small stock of all grades. Fine Cape and Australian tops, 42 to 44c.

In Toronto there is little or no movement in fleece. Dealers are not offering over 13c. for combing. Pulled wool, 15c., super; 19 to 20c. for extra.

In Winnipeg there is no wool offering.

On the whole the outlook is encouraging for the future. That the heavy purchases of late were accomplished without seeking concessions indicates that the mills are satisfied and promises that future operations may be productive of moderate gains. While the average is still low as compared with recent years, it is slightly better than the bottom point reached while the new clip was coming forward. There are two features of the United States market which directly concern holders of Ontario fleece, viz., that the increased demand has brought with it only a fractional advance, and that only in certain fine lines; and that the wools being sold are of the finer growth and not the same as our coarse wools.

The fact that most of the 1901 clips have passed out of growers' hands and are practically in the sight of buyers is one of the sources of weakness in the position of sellers. Another is the absence of uniform confidence in an ultimate advance which induces many holders to accept offers at old rates when they have been declined by their competitors.

### WOOLEN CARDING.

A correspondent of the Wool and Cotton Reporter, in view of the fact that many young carders and spinners have entered the field in the past few years, reiterates some facts, old and new, which will be found helpful to those who have entered upon this line of business. A larger production and a better quality of yarn from a cheaper grade of stock are called for, and must be produced by the carder of the present day if he will retain his title to a skilled workman. At the present time we find that there are many calls for carders who are, as above stated, skilled workmen, to whom wages are being paid that surpass those of a few years ago. Wool, cotton and shoddy is the combination of at least seven-tenths of the goods at present manufactured. Those three commodities are presented in various percentages, with shoddy predominating. Perhaps the following would represent an average batch of stock as presented to the carder to be converted into yarn: Shoddy, 82 per cent.; wool, 10 per cent.; cotton, 8 per cent.; total, 100 per cent.

There are various grades of shoddies, wool and cotton, that in an article of this kind would be confusing to attempt to describe. Cheap would be the word best adapted to suit the description. This does not mean that the best grade of shoddy, wool and cotton enters into the cheapest goods manufactured, nor does it mean that the cheapest grades of shoddy, wool and cotton enter into the higher priced goods of this combination. It will be presumed to be understood that the price of stock largely determines the selling price of the manufactured goods. Therefore, the carder is in a position to increase or decrease the price of yarn, from any combination given him; first, by a thorough carding of the stock and making sound roping; second, by keeping the waste item to the lowest point; third, by the greatest possible production obtainable from a given combination of stock and size of yarn. Assuming that the carder has the fullest scope to manipulate the machinery in his charge, he will give his best endeavors to produce the desired result.

A few words on preparing a batch in the picker room. That this should be done rightly is very essential to success in the carding room. Where a smooth yarn, free from specks is desired, both the percentages of wool and cotton being small, those stocks must be carded before mixing in the batch to insure success. First, the wool must be thoroughly cleaned of burrs in a burr picker that is kept in as near a perfect condition as possible. The burr cylinders must be kept cleaned as often as required, the brush properly set on the same, in order that a perfect delivery be obtained at all times, and the screen over main cylinders kept clean at all times, and the feed as laid on the feed apron not too heavy nor run so fast as to give more stock to the main cylinder than the burr cylinders will take and deliver freely, so that little stock will remain on the main cylinder at any time. Last, but not least, the exhaust fan must be kept well belted, and run in its proper direction, and the foreign matter, dirt, etc., beneath the main cylinder, kept cleaned out as often as necessary. Any neglect to care properly for the burr picker will cause trouble that cannot be afterwards eradicated.

Having the stock ready for the mixing picker, it must be thoroughly mixed by making layers of one upon the other of the different kinds of stock, and then broken from top to bottom as it is fed on the apron of the mixing picker. As to the oil to be used, experience has taught that in the past we have used too much rather than too little. Usually shoddy as it comes from the shoddy mill has oil enough on it (and frequently too much) for all purposes. If these batches are made up before being colored very little oil will need to be used. Water should be used to moisten the stock. If the stock is colored, only half the quantity of oil will be required that would be put on all-wool stock.

Stock handled as above will be in prime condition for the cards, which must be at their best, whether they are good or bad. Iron wire is a back number in a card room, with one exception, that is, the fancy. Nothing is nearly as good as an iron wire fancy for this, but for all other purposes nothing will equal tempered steel wire.

### INFANT MORTALITY IN FACTORY TOWNS.

Attention has been forcibly called of late to the low birth-rate in Ontario. Similar conditions seem to prevail in some parts of England, and in connection therewith attention is also called to the infant mortality which prevails in factory towns. Discussing this question the Textile Mercury remarks:

The decline in the birth-rate of this country is likely to bring into greater prominence the high and increasing infantile mortality which is working with it to deplete the vital forces of the nation. For years past we have been accustomed to watch with satisfaction the direct effect of efficient sanitation, and of the wider distribution of wealth with the consequent improvement in the circumstances of the people, in reducing the death-rate; but what we have gained in one direction is being more than lost in another. Although the limit of amelioration may not have been reached, it is certain that there is so much less room for relieving pressure upon the national vitality; thus the diminution in the death-rate will proceed much more slowly than hitherto, so that if the causes that bring about such a serious decrease in the number of replenishing lives are maintained or increased, we shall before long have to face all the dangers, industrial or defensive, of a shortage in the population. It is in these respects that the pitiful and certainly largely preventible mortality among young children becomes of so much moment, and we may be sure that when it comes to receive proper consideration much of the blame for the heavy loss of young

lives will be laid at the door of the factory system, and more especially upon the employment of married women. We know that the percentage of married women employed is not so large as is generally supposed; it is certain that the feeling of employers is opposed to their engagement; and we have good authority for the assertion that in factory towns "most affected by married women's labor, the percentage of married women employed is diminishing." But we know, only too well, that it only needs an outcry to be raised over this question—and more particularly if raised when a dissolution of Parliament appears imminent—for some fresh and vexatious regulations to be proposed, and, no matter how unreasonable, to be probably imposed upon factory employment. Mrs. Florence J. Greenwood, sanitary inspector at Sheffield, who has written a paper on the subject (recently issued as a pamphlet\*), anticipates that the employment of married women in factories and workshops may be prohibited by law. But while married women have voices and their husbands votes their position is secure enough, no matter though their offspring may be left in jeopardy. Interference would more likely be attempted at the expense of the employer, and perhaps aim at providing, at his expense, periods of absence (on full wages, of course) before and after confinement for married women, perhaps for nurseries and attendants in mills, and stated intervals during working hours for the imparting of what Mr. Micawber would have called Nature's lacteal nutriment.

### CANADIAN MANUFACTURERS' ASSOCIATION.

#### THE WOOLEN SECTION.

The annual meeting of the Canadian Manufacturers' Association was held in Montreal on the 5th and 6th inst., P. W. Ellis, president, in the chair. Among those present connected with the textile trades were the following: B. Rosamond, M.P., Rosamond Woolen Co.; David Morrice, sr., David Morrice, jr., W. J. and R. D. Morrice, of D. Morrice, Sons & Co.; R. R. Stevenson, Excelsior Woolen Mills; Geo. D. Forbes, the R. Forbes Co.; Jonathan Ellis and J. B. Henderson, Fenman Mfg. Co.; Chas. J. Alexander, of Scotland; James Kendry, Auburn Woolen Mills; John Dick, Cobourg Woolen Mills; Geo. Pattinson, Preston Woolen Mills; R. J. P. Murray, Toronto Carpet Mfg. Co.; John Hewton, Kingston Hosiery Co.; R. Dodds, Guelph Carpet Works; C. R. H. Warnock, Galt Knitting Co.; W. E. Paton and John Turnbull, Paton Mfg. Co.; S. T. Willett and Brock Willett, Richelieu Woolen Mills; Joseph Horsfell, Montreal Woolen Mills; C. E. Burrows, Trent Valley Woolen Co.; John F. Morley, Canada Woolen Mills; Wm. Thoburn, Thoburn Woolen Mills; Oxford Mufg. Co., Oxford, N.S.; Ed. J. Coyle, Millichamp, Coyle & Co.; Joseph Beaumont, Glen Williams; A. G. Lomas, Adam Lomas & Son; E. T. Dufton, Stratford Woolen Mills; Moritz Boas, Canada Knitting Mills, St. Hyacinthe; A. H. Baird and H. Stroud, Paris Vincey Mills; James A. Clark, Bullock's Corners; Geo. Reid, Geo. Reid & Co., Toronto; Frank Paul, Belding, Paul & Co.; W. H. Wyman, Corticelli Silk Co.; G. E. Amyot, Dominion Corset Co.; J. F. Molléur, St. Johns, Que.; Clayton & Sons, clothing manufacturers, Halifax; Williams, Greene & Rome, shirt manufacturers, Berlin, Ont.; P. H. Purton, Merchants' Dyeing and Finishing Co., Toronto, Cornwall Mfg. Co.

The woollen section held a session, at which the following resolution was passed and afterwards adopted by the association for presentation to the Government:

\* Is the High Infantile Death-rate due to the Occupation of Married Women? (Sheffield: Bale, Sons, and Danielsson, Ltd. Price 3d.)

"The request of the Woolen Manufacturers' Committee is that you endorse their request to the Government for a net tariff after the reduction of the preferential tariff of not less than 30 per cent., or its equivalent, upon all classes of finished woolen, worsted and knitted goods and carpets, and of 20 per cent., or its equivalent, on all classes of woolen and worsted yarns."

This is equivalent to an advance in the duty upon manufactured woolen goods of 15 per cent. gross, or 30 per cent. net, and on yarns of a duty of 30 per cent. gross, or 20 per cent. net.

This section elected the following officers for the ensuing year:

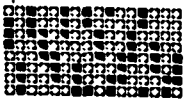
- Chairman—J. B. Henderson, Paris, Ont.
- First Vice-Chairman—S. T. Willett, Chambly Canton.
- Second Vice-Chairman—E. T. Dufton, Stratford, Ont.
- Secretary—T. A. Russell, Board of Trade Bldg., Toronto.
- Committee—R. R. Stevenson, Montreal; John Turnbull, Montreal; J. P. Murray, Toronto; James Kendry, Peterboro, Ont.; Geo. D. Forbes, Hespeler, Ont.; Geo. Pattinson, Preston, Ont.; John Dick, Toronto; J. F. Morley, Moritz Boas, St. Hyacinthe, Que.

The committee on the tariff on shirts, collars, cuffs and blouses unanimously reported that the only practical measure of relief in view of the present state of the trade was to alter the present tariff, that specific duties be granted to this industry, namely: "The ad valorem duty to be at the same rate as paid on their new material, plus a specific duty of 24 cents per dozen on collars; 48 cents per dozen on cuffs; 100 cents per dozen on shirts, and 100 cents per dozen on blouses."

This was signed by the representatives of fourteen large shirt and collar manufactories.

## Textile Design

### UNION TROUSERING.



Complete Weave.  
Repeat 16 x 8.

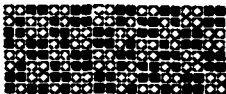
Warp:—5,670 ends, 16-harness straight draw, all yarn, 2 132's worsted.  
Reed:—15 x 6.

Dress:—  
1 end, lavender, } x 4 = 8 ends.  
1 end, black, }  
1 end, dark twist, } x 4 = 8 ends.  
1 end, black, }

Repeat of pattern, 16 ends.

Filling:—60 picks per inch, all 5-run black woolen yarn.  
Finish:—56 inches finished width.

### FANCY WOOLEN TROUSERING.



Complete Weave.  
Repeat 20 x 4

Warp:—1,904 ends, 8-harness fancy draw.  
Reed:—14 x 2.

Dress:—  
2 ends, 2-ply, 6-run twist, blue and gold,  
2 ends, 3 1/2 run, black,  
2 ends, 2 ply, 6-run twist, green and crimson,  
4 ends, 3 1/2 run, olive,  
2 ends, 2-ply, 6-run twist, blue and gold,  
2 ends, 3 1/2 run black,  
2 ends, 2-ply, 6-run twist, green and gold,  
4 ends, 3 1/2 run, olive.

20 ends repeat of pattern.

Filling:—28 picks per inch, all 3 1/4 run olive.  
Finish:—Fancy cassimere finish, shear clear; 56 inches wide.

## ALOE AS A TEXTILE.

A company has been formed in Southern India, to acquire plantations of aloe and to extract fibre therefrom for commercial purposes. It has obtained the lease for a number of years of all the aloe plants belonging to the Forest Department of the Local Fund Board along the roads of the Anantapur district, some 300 miles in extent, this being an area where aloe hedging is extensively resorted to. The company has also leased 20,000 acres of land for planting purposes, and is said to be turning out fibre superior to anything that is produced in the Bahamas or Mexico, the two chief fibre-producing countries.

The Executive of the Canadian Manufacturers' Association will discourage the use of the term American as applied to Canadian made goods. A wise resolve.

—An electric process for making cloth waterproof has been brought out in France. The goods are saturated in a bath of metallic salts, and then subjected to the action of an electric current.

—Little self-denials, little honesties, little passing words of sympathy, little nameless acts of kindness, little silent victories over favorite temptations—these are the silent threads of gold which, when woven together, gleam out so brightly in the pattern of life which God approves.—Canon Farrar.

**GIVE THE BOYS A Stevens Favorite Rifle.**  
It will teach them to enjoy outdoor life, to learn how to shoot. The first will bring health and a good disposition. The latter will induce coolness and deliberation, command of eye and hand—all valuable helps for success in future life. There is nothing cheap about a Stevens Rifle but the price; the quality is in every arm.  
**Favorite (with Open Sight) \$6.**  
Where dealers do not carry these in stock we will send, express prepaid, on receipt of price. Our new catalogue contains description of the entire line of arms made by us; also a valuable reference book for shooters. No charge except stamp for postage.  
J. STEVENS AND SONS TOOL CO., Box 2, Chateaufort Falls, Mass.

**GOP TUBES  
CONES AND SHEETS  
WORSTED TUBES  
CONICAL TUBES  
MAILING TUBES**  
Haworth & Watson. Lowell, Mass.

---

---

# ENGLISH CARD CLOTHING

**Full Stock on Hand.**

---

**SPRINGFIELD MILLS, CLECKHEATON.**

**ESTABLISHED 1820.**

---

Large Buyers will be astonished at the prices we can give  
you on CARD CLOTHING.

Quality of our goods excelled by none, regardless of cost.

---

**HIGH GRADE**

**“GENUINE OAK”**

(ENGLISH TANNED)

**LEATHER BELTING**

---

***I GUARANTEE***

**More Solid Leather to the Foot than any Belt made.**

---

The Largest Individual Mill Order was Filled  
Satisfactorily by Us.

---

**MILL SUPPLIES OF EVERY DESCRIPTION**

---

**D. K. McLAREN,**

**88 Bay Street, Toronto.**

**751 Craig Street, Montreal.**



**TEXTILE PUBLICATIONS.**

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

- Loom Fixing; a handbook for loom fixers working on plain and fancy worsteds and woolens; containing chapters on shuttles and bobbins, and their management; head motion; putting in warps; filling; adjusting and starting new looms; chain building, etc.; 104 pages, by Albert Ainley .....\$1 00
- Technology of Textile Design; explains the designing for all kinds of fabrics executed on the harness loom, by E. A. Posselt ..... 5 00
- Structure of Fibers, Yarns and Fabrics, the most important work on the structure of cotton, wool, silk, flax, carding, combing, drawing and spinning, as well as calculations for the manufacture of textile fabrics, by E. A. Posselt ..... 5 00
- Textile Machinery Relating to Weaving, the first work of consequence ever published on the construction of modern power looms, by E. A. Posselt..... 3 00
- The Jacquard Machine Analyzed and Explained; explains the various Jacquard machines in use, the tying up of Jacquard harness, card stamping and lacing, and how to make Jacquard designs, by E. A. Posselt..... 3 00
- Textile Calculations; a complete guide to calculations relating to the construction of all kinds of yarns and fabrics, the analysis of cloth, etc., by E. A. Posselt.. 2 00
- Wool Dyeing; an up-to-date book on the subject, by E. A. Posselt ..... 2 00
- Worrall's Directory of Cotton Spinners, Manufacturers, Dyers, Calico-printers and Bleachers of Lancashire, giving the mills of the British cotton district, with number of looms and spindles, products of the mills, cable addresses, etc .....\$2 00

- Worrall's Directory of the Textile Trades of Yorkshire, comprising the woolen, worsted, cotton, silk, linen, hemp, carpet, and all other textile mills, giving looms and spindles, and the various lines of goods manufactured, etc .....\$2 00
- Worrall's Textile Directory of the Manufacturing Districts of Ireland, Scotland, Wales, and the counties of Chester, Derby, Gloucester, Leicester, Nottingham, Worcester, and other centres not included in preceding works, with capacity, products of mills, cable addresses 2 00
- The Wool Carder's Vade-Mecum, by Bramwell; third edition, revised and enlarged; illustrated; 12mo..... 2 50

**CHEMICALS AND DYESTUFFS.**

Business has improved the last few weeks, enquiries are numerous for delivery before close of navigation. Prices remain steady.

- Bleaching powder .....\$ 2 75 to \$ 3 00
- Bicarb. soda ..... 2 00 to 2 05
- Sal soda ..... 0 75 to 0 80
- Carbolic acid, 1 lb. bottles..... 0 50 to 0 60
- Caustic soda, 60° ..... 2 35 to 2 60
- Caustic soda, 70° ..... 2 60 to 2 85
- Chlorate of potash ..... 0 13 to 0 15
- Alum ..... 1 35 to 1 50
- Copperas ..... 0 65 to 0 70
- Sulphur flour ..... 2 00 to 2 50
- Sulphur roll ..... 2 00 to 3 00
- Sulphate of copper ..... 6 00 to 6 25
- White sugar of lead ..... 0 08 to 0 08
- Bich. potash ..... 0 11 to 0 12
- Sumac, Sicily, per ton ..... 75 00 to 80 00
- Soda ash, 48° to 58° ..... 1 30 to 1 40
- Chip logwood ..... 1 90 to 2 00
- Castor oil ..... 0 09 to 0 10
- Coconut oil ..... 0 10 to 0 11

**NEW BLACK FOR COTTON**



**DOUBLE STRENGTH**

Unequaled for depth of shade. Users of black should investigate. Fastest Black on the market.

**F. E. ATTEAUX AND CO.  
BOSTON.**

**CANADIAN BRANCHES:**

53 Colborne Street, TORONTO | 13 Lemuel Street, MONTREAL

**A. KLIPSTEIN & CO.**

122 PEARL STREET, NEW YORK.

*Chemicals & Dyestuffs*

Fast Color for Wool—Dry Alizarine, Phenocyanine, Gallocyanine  
Direct Cotton Colors—Auramine, Congo Red.  
Azo Colors—Naphthol Yellow, Orange, Scarlets, Fast Red.

**HEADQUARTERS FOR**

- Caustic Potash 90%
- Chlorate of Potash
- Phosphate of Soda
- Carbonate of Potash
- Bleaching Powder
- Refined Cutch A.K.C.

**WRIGHT & DALLYN, Agents, Hamilton, Ont.**

**JOHN W. LEITCH & CO.**

Milnsbridge Chemical Works, near HUDDERSFIELD, ENGLAND.

**PHENYLENE DIAMINE (DISTILLED)**  
**TOLUYLENE DIAMINE (DISTILLED)**

**Bismarck Brown, Chrysoidine, Crystals and Powder.** Largest makers in the world.  
**Soluble Blues—all shades.**  
**Dinitro Benzol and Dinitro Toluol.**  
**Reduced Indigo. Wood & Leather Stains.**  
**Ortho-Nitro-Toluol & Para-Nitro-Toluol.**  
Specialties for Cotton, Wool and Silk Dyers, Paper Makers, etc.

**FABRIC EXPORTS—BRITAIN TO CANADA.**

The following are the values of exports of fabrics from Great Britain to Canada for the month of September, and for the first eight months of the year, compared with those for the same period last year. The figures are those of the British Board of Trade, and are in pounds sterling:

	September,		9 months to Sept.	
	1900.	1901.	1900.	1901.
Raw Materials—Wool .....	3,193	652	33,336	19,025
Cotton piece goods .....	41,971	41,528	536,269	480,426
Jute piece goods .....	9,580	12,625	111,583	110,185
Linen piece goods .....	13,573	13,659	154,705	137,988
Silk, lace goods .....	841	81	11,965	1,801
Silk, articles partly of.....	3,708	6,731	45,186	52,628
Woolen fabrics .....	28,137	31,110	368,188	358,797
Worsted fabrics .....	36,615	54,762	498,397	552,973
Carpets .....	17,149	22,643	195,023	190,495

**KNITTED GOODS TRADE.**

In an interesting paper read before the New England Cotton Manufacturers' Association at Niagara Falls, recently, Mr. Albert Deabill, of Lowell, stated that at present there is no branch of the textile industry comprising a wider variety of fabrics than the knitting industry, since nearly every kind and form of wearing apparel can be produced on knitting

machines. It is the opinion of Mr. Deabill that with the rapid progress being made in mechanical inventions and improvements, and in the more intelligent expenditure of energy and capital, there is no doubt that knitted goods made in the United States must take the lead in the race for business in the markets of the world. The rapid growth of the knitting industry in the United States during the past twenty years has been phenomenal. Two decades ago the manufacturers of Europe found a ready market in the United States for all kinds of knitted goods which they could produce; but year by year Europe has been sending a lessening quantity of goods to that country, until at present it is sending not more than 20 per cent. of the amount shipped there twenty years ago. The goods now imported are of a finer grade than is at present extensively manufactured in the United States, but the prediction is made that the day is not far distant when the Americans will make not only the cheaper goods, but also the finer grades for their own consumption, and have a surplus to sell abroad. Mr. Deabill's words are worthy of consideration by Canadian manufacturers. Why should we not share in this knitted goods trade? We can manufacture knitted goods, yes, and knitting machines, too, as well in Canada as they can in the United States.

The Western Canada Woolen Mills Co. has gone into liquidation. This company recently erected a woolen mill at Medicine Hat.

**C. E. RILEY & CO'Y.**

281-285 Congress Street, Boston, Mass.

Builders and Importers of

COTTON, WOOLEN, WORSTED

**MACHINERY**

CARD CLOTHING, EMERY FILLET, EGYPTIAN COTTON,

SPINDLES, FLYERS, FLUTED AND SHELL ROLLS, GRINDING ROLLS, &c.

**GEORGE REID & COMPANY,**

WOOL MERCHANTS

Francis Willey & Co.

Bradford, Eng.

WOOLS

Sole Agents for the  
Hamilton Cotton Co.'s

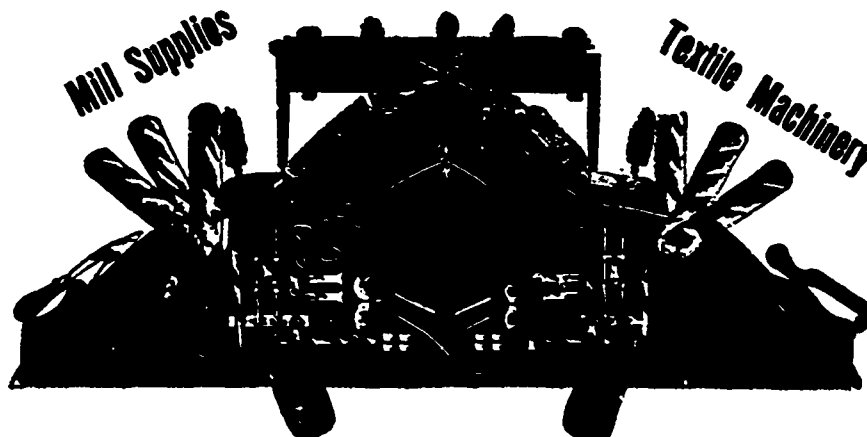
WARPS

Samuel Law & Sons

English

CARD  
CLOTHING

Valuations made on  
Application.



James Smith

Woolen Machinery Co.

Carding  
Spinning  
Woolwashing  
Garnetting  
Picking  
Drying  
Burring  
Cleansing  
and . . .  
Finishing  
Machinery

Office—11 & 13 Front E.

Warerooms—138 Esplanade E.

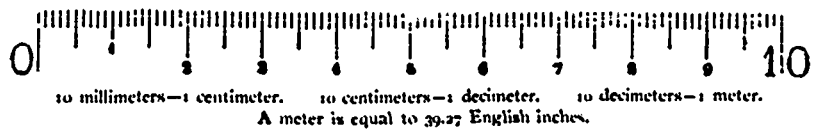
(Foot of Jarvis St.)

**TORONTO**

Telephone, Main 3591

# GET IT IN . . . . SHORT METER!

This is a Decimeter, or One-tenth of a Meter.



The Metric System of weights and measures will soon be introduced into Canada and the United States. You will, therefore, find it a useful study. Its principles can be learned in ten minutes. In the metric system every measure, whether of volume, capacity, length or area, is related to the meter, and is based on our decimal system of notation. To show its simplicity the whole system of weights and measures is explained on a single chart, 40 x 14 inches, containing diagrams of the actual sizes of the fundamental weights and measures. This chart will be mailed post-paid to any address in the world on receipt of 10 cents. Address

**BIGGAR, SAMUEL & CO., 62 Church St., Toronto, or Fraser Building, Montreal**

## Opinions of the Press

### CHART OF THE METRIC SYSTEM.

The publishers have received many letters complimenting them on the issue of the popular Chart of the Metric System of weights and measures. The following are a few sample opinions:

I have very much pleasure in seeing you step to the aid of those pressing the Metric System to the front. I shall be glad to call the attention of teachers to your chart. The Metric System has for a number of years—since I came into office—been taught in all the schools of the province; and the metric measures are those called for in the returns from all our high schools—dimensions of school rooms, etc. I have much pleasure in sending you a few copies of my brochure on the "Three Great Reforms," in which it will be seen that for a number of years I had been an advocate of the system—even in the conservative city of Toronto. Wishing you much success.—A. H. Mackay, Superintendent of Education, Nova Scotia.

I am in receipt of your favor of the 7th ult., together with a copy of The Canadian Engineer for June, and a specimen of the Chart of the Metric System prepared by your firm. I am very pleased to read your article, but I wish particularly to compliment you on the chart. It is, I believe, the best I have seen for explaining briefly the principles of the Metric System. It will afford my committee much pleasure to hear of this awakening interest in Canada. Australia too is showing a growing disposition to adopt Decimal Coinage and Metric Weights and Measures, and here we keep gaining a step month by month.—E. Johnson, Secretary Decimal Association, London, Eng.

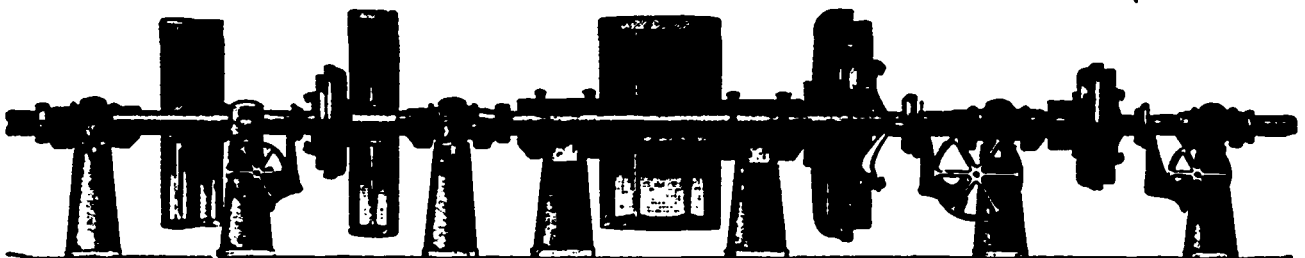
We see that you, too, advocate the general adoption of the Metric System of weights and measures, and we believe that as much as possible everywhere the same means should be employed to accomplish the desired aim. The widest possible distribution of your chart would no doubt be a good step forward. We request you therefore to forward to us two copies

for our office and for the library of the American Society of Dyers.—L. M. Carriat, Philadelphia.

The Monetary Times has a review of your Chart of the Metric System. I notice the price is stated at ten cents per copy, but if you have any other more expensive editions printed, I should be glad to receive a copy or two; as it is my intention to frame a copy (if possible), and present it to the library of the society of which I am an associate, viz., the Incorporated Accountants (Eng.). It is high time that British traders and accountants awoke to the necessity of adopting decimal coinage and measures. Enclosed please find \$1 (Canadian), to cover your expenses for as many copies as the remittance will pay for. Trusting you will be able to assist our efforts on this side to foster "intercolonial and home-country" trade, and lessen the tide of German competition, which is a danger to all the English-speaking countries, if Germany gets the upper hand (both politically and socially), and assuring you of the awakening of the British to their surrounding dangers of subsidized continental competition.—E. Woodroffe, 121 Stapleton Hall Road, Stroud Green, London, England.

Please accept my thanks for the Metric System Charts. The adoption of the Metric System must shortly take place, as everything is to be said for it and next to nothing against it. As to the chart, I consider it is a valuable one, and one which every progressive citizen ought to have in his home. The mass of information, which it explains, is handled in such a simple manner that anybody can understand it without becoming in the least confused as to the use of the different terms, which is the only drawback, that I know of, to the Metric System. There is no doubt though that, if the system were adopted, the terms would be abbreviated to suit the rapid business methods this side of the Atlantic. I expect that a number of people, to whom I have shown the chart, will be calling upon you for copies of it ere long, as they have already expressed intentions of doing so.—Dermot McEvoy, Mechanical Engineer.

## POWER TRANSMISSION MACHINERY. ( COMPLETE OUTFITS.



**DODGE MANUFACTURING COMPANY, TORONTO, CAN.**

SEND FOR B6 CATALOGUE FOR 1901

**EVAN ARTHUR LEIGH**

Successor to E. A. LEIGH & COMPANY

35-36 Mason Bldg., Boston, Mass., U.S.A

IMPORTER OF

**Textile MACHINERY**  
Etc.

Sole Agent for the U. S. and Canada for

**Messrs. PLATT BROS. & CO.**  
(LIMITED), OF OLDHAM, ENGLAND.

BY FAR THE LARGEST MAKERS OF TEXTILE MACHINERY IN THE WORLD

Platt's Cotton, Woolen and Worsted Machinery.  
Sole makers of Brown's Patent Carding Rollers for wool—  
give woolen yarn a worsted appearance.

New Patent Noble Comb—increased production, better  
work.

Platt's Special Machinery for making English and French  
Worsted Yarns.

Platt's Special Machinery for making Cotton Waste into  
Yarns.

Also Sole Agent for U. S. and Canada for

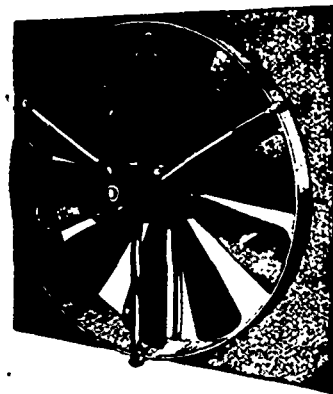
**Messrs. MATHER & PLATT**

Salford Iron Works, Manchester, England.

Bleaching, Dyeing and Finishing Machinery and Archbutt-  
Deeley System of Softening and Purifying Hard Water.  
The Best System on the Market.

Wool Washing and Drying Machines. Garnett Machines. French  
and English Napping Machines. Card Clothing for Cotton (Sykes's).  
Woolen and Worsted (Critchley's). Vary's Fallers and Circles, etc.

Fine Cotton and Worsted Yarns. Machinery delivered duty and  
freight paid.



**CYCLONE FANS**

THE BEST FOR DRYING AND VENTILATING

**CYCLONE DRYERS**

For Wool, Cotton Stock, Yarn, Underwear, and Stockings.  
Carbonizing Machines, Yarn Scouring Machines.

**GARNETT MACHINES**

Breasts, Burring Machines, Feed-Rolls

RE-CLOTHING Garnetts a Specialty

**PHILADELPHIA TEXTILE MACHINERY CO.**  
PHILADELPHIA, PA.

**Canadian Colored  
Cotton Mills  
Company.**

Cottonades,

Tickings,

Denims,

Awnings,

Shirtings,

Flannelettes,

Ginghams,

Zephyrs,

Skirtings,

Dress Goods,

Lawns,

Crinkles,

Cotton Blankets,

Angolas,

Yarns, etc.

WHOLESALE TRADE ONLY SUPPLIED.

**D. Morrice, Sons & Co.**

Agents,

Montreal and Toronto.

WILLIAM FIRTH, Pres. EDWIN BARNES, Vice-Pres. JOHN H. NELSON, Treas.

**WILLIAM FIRTH CO.**

67 Equitable Bldg., - 150 Devonshire St., BOSTON, Mass.

SOLE IMPORTERS OF

ASA LEES & CO., Limited, Textile Machinery—Including Self-  
Acting Mules for Cotton, Woolen and Worsted. Nearly 1,000,  
000 Spindles of this well-known make at work or on order in  
Canada and the United States. All parts carried in stock.

Also Bale Breakers, Revolving Flat Cards for Cotton, Drawing Frames,  
Slubbing Frames, Intermediate Frames, Roving Frames, Combers,  
Ribbon and Combers Lap Machines, Carding Engines for wool,  
wadding, and also condensers, &c.

SOUTHERN AGENTS FOR

FALL RIVER MACHINE CO.—Ring Spinning Frames and Coiler  
Railway Heads.

SOLE AGENTS FOR

WILLIAM TATHAM & CO.—Waste Machinery. JOSEPH  
STUBBS—Gassing, winding and reeling machinery for cotton,  
worsted and silk. GEO. HATTERSLEY & SONS, Limited—  
Makers of every description of looms for plain and fancy weaves.  
GEORGE ORME & CO.'S patent bank indicators, etc. JAMES  
YATES & SON—Hardened and tempered steel card clothing for  
woolen and worsted cards. R. CENTNER FILS—Heddles.

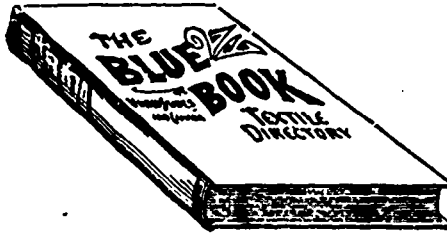
SELLING AGENTS FOR

JOSEPH SYKES BROS.—Hardened and tempered steel card cloth-  
ing for cotton. DRONSFIELD BROS., Limited—Emery wheel  
grinders and emery fillet. Also yarn testers, warp reels, &c.

Southern Office, 49 South Forsyth Street, Atlanta, Ga.  
C. E. W. DOW, Representative.

The Rosamond Woolen Co., of Almonte, some time ago  
secured an order of the Court for the examination of Mrs.  
John Calder, in connection with the failure of John Calder,  
wholesale clothing manufacturer, of Hamilton, who assigned  
last May, it having been alleged that a transfer of goods had  
been made to her prior to the failure. An appeal was en-  
tered against the order. Judge Street has now dismissed the  
appeal.

**The Blue Book, Textile Directory,  
Exposition Edition, with  
Patent Index.**



The 14th annual edition has been issued, and shows some 350 new mills during the year.

The map plates of the Southern and Middle States have been newly engraved, these showing all towns where textile plants are located.

In view of the Pan-American, and South Carolina, Interstate and West Indian Expositions opening this year, the publishers have given views of the principal buildings of both expositions, with explanatory matter.

More details concerning the mills are given than heretofore, this increasing the size about 60 pages, the price remaining the same.

The Blue Book contains all Textile Manufacturers in the United States and Canada, including in the office edition, a directory of Textile Mill Supplies, covering the Machinery, Chemical and Dye-Stuff Manufacturers, with the Commission Merchants, Yarn dealers, etc., and these, in connection with its many pages of specially engraved maps, make it a trade work of the highest order.

Price:—Office Edition, \$3.00; Traveler's Edition, \$2.50.

**DAVISON PUBLISHING COMPANY,  
401 Broadway, New York.**

**G. B. FRASER,  
3 Wellington Street East, TORONTO**

**REPRESENTING**

Miller Bros. & Co., Montreal; Paper and Celluloid Collars, Cuffs and Shirt Bosoms  
Meridian Cotton Mills, Meridian, Miss.; Colored Shirtings and Fancy Cottons.  
D. Fisher, Paisley, Ont., Etouffes and Tweeds.  
John J. Ashley & Co., Bradford, Eng., Dress Goods and Worsteds.  
Horner, Dettermann & Co., Barmen, Germany, Buttons, etc.  
S. W. Whitam, Leeds, Eng., Woolens.  
Merrinack Print Mfg. Co., Lowell, Mass.  
Hurton Bros. & Co., New York; Linings, &c.  
H. T. Lamkin & Co., Cotton Brokers, Vicksburg, Mississippi Long Staple Cotton a specialty.

**YOUR ENGINEER OUGHT TO HAVE A COPY !!**

**The Manual of Lubrication,**

**Or, How to Choose and How to Use Lubricants for  
any description of Machinery**

With Methods of Determining the Purity and other Properties of Oils, etc.  
By **LOUIS SIMPSON**

Price \$1.00  
Post-paid

Address **BIGGAR, SAMUEL & CO.,  
Fraser Bldg., MONTREAL, Can.**

**YARNS**

**SPECIALY REPRESENTING . . . .**

Wm. Hollins & Co. Ltd., Nottingham—Worsted and Merino Yarns.  
Wm. Aykroyd & Sons, Ltd., Bradford—Mercerized Cotton Yarns.  
Before making contracts, please write for samples and prices to—

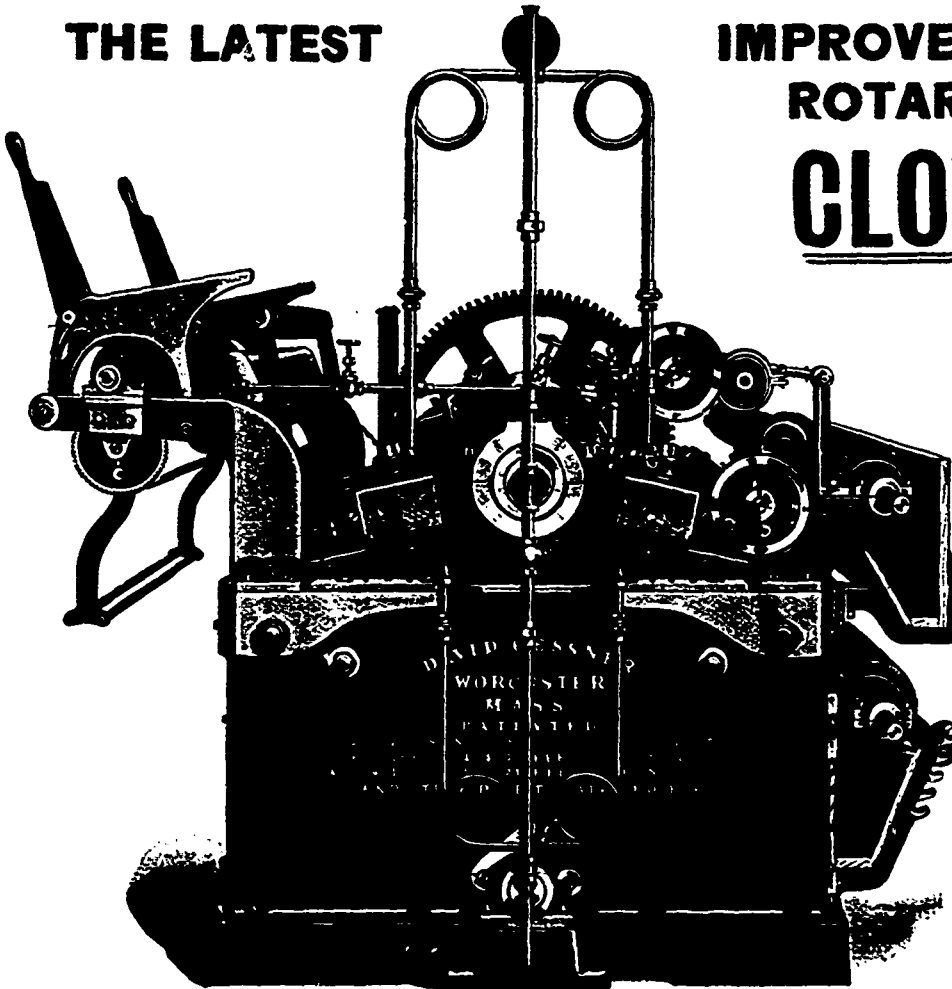
**W. M. CROWE,** Agent for the United States  
and Canada.

**477 Broome St., NEW YORK**

**THE LATEST**

**IMPROVED DOUBLE-BED  
ROTARY**

**CLOTH PRESS**



The bed plates are self-adjusting, the levers that operate them being mounted upon sliding steel fulcrum bars within the frames. The trussing apparatus of the bed plates is so arranged as to permit not only a forcing of the centres of the bed plates in a forward direction, toward the cylinder, but also away from it, which is of the utmost importance if the bed plates should ever become sprung. Bed plates and cylinder after being cold finished, are ground absolutely true while heated by steam at 75 lbs pressure, insuring perfectly straight and uniform pressing surfaces. Pressure is applied and removed instantaneously, and by power.

**DAVID GESSNER,  
WORCESTER,  
MASS., U.S.A.**

# A FENT! A FENT!

## WHAT IS A FENT ?

**I**F you were born in Lancashire you would know that a fent is a remnant. The fent here announced is the last remnant of the Fourth Edition of the **Canadian Textile Directory of 1899**. It will be three years before another edition is printed, and though there have been some changes since the date of last issue, the work is remarkably comprehensive. The regular publishers' price is \$3 00 per copy, but we are now clearing out the balance of this edition at only

**One Dollar per Copy.**

The following Synopsis of the Contents shows what a valuable work of reference this is, and what a bargain is here offered.

## CANADIAN TEXTILE DIRECTORY,

563 Pages Substantially Bound in Cloth.

The Canadian Textile Directory is more than a mere directory of names. It gives facts and figures about the textile trades of Canada which have been attempted in no other work. It contains not only lists of all the general stores, retail dry goods dealers, hat and fur dealers, clothiers, haberdashers, tailors, milliners, etc. (the retail lists contain over 19,000 names), but all the wholesalers and commission merchants or manufacturers' agents in similar lines, and all the mills and factories engaged in manufacturing fabrics connected with the textile and kindred trades. It is the only work in Canada which gives a full list of the boards of trade, commercial travelers' associations, and dry goods and kindred associations, while the immense amount of statistical information, such as the details of the imports and exports of dry goods, etc., the tariff of Canada, of the United States and Newfoundland, sterling exchange rates, etc., make it indispensable in an office of any pretensions.

As an example of the information given in the various lists of manufacturers, the following shows the form of report of the Woolen Mills: Name and address of Proprietors, and names of the Officers (if a joint stock company), the capacity in sets of cards, looms and spindles, when established, whether water, steam or electric power, description of goods

manufactured, whether the mill has a dyehouse, and names of selling agents, if any. Corresponding information is given concerning the other mills, of which the following is a list: Asbestos miners and manufacturers, manufacturers of awnings, hatting (wool and cotton), bedding, binder twine, braids, buttons, caps, carpets (including hand loom weavers), children's wear, cloaks, clothing, collars, cuffs, cordage, corsets, cottons, embroidery, feathers, felts, flags, flax, fringes, furniture, gloves, hair cloth, hats (straw, felt and cloth), haberdashery, horse covers, hosiery, jute goods, lace, ladies' wear, mantles, mats, mattresses, men's furnishings, millinery, mitts, neckwear, oil cloth, oiled clothing, overalls, paper, pulp, pins, print goods, regalia, rope, rubber goods, sails, tents, shirts, shoddy, felt, straw goods, suspenders, tarpaulins, tassels, thread, tow, trusses, linens, umbrellas, upholstery, wadding, water-proof garments, webbings, window shades, worsteds, etc. The woolen mills include the carding mills, manufacturers of tweeds, blankets, flannels, yarns, homespuns, and all other piece goods, carpets, felts, and all kinds of knitted fabrics. The cotton mills include all classes of cotton piece goods, yarns, wadding, hatting, etc. There is also a complete list of the tanners and curriers, laundries, dyers, dealers in raw wool, furs, etc. Under each heading the whole of Canada and Newfoundland is included.

ADDRESS

**BIGGAR, SAMUEL & COMPANY,**

"Fraser Building," MONTREAL, or 62 Church Street, TORONTO, Canada.

**NOTE.**—The books will be mailed or expressed in the order of receipt of letters or telegrams. Should we have more orders than can be filled the money will be refunded.

**E. T. CARTER**

Successor to JOHN HALLAM

**WOOL**35 years at the old stand:  
83 & 85 Front Street East  
**TORONTO**

DOMESTIC AND FOREIGN WOOLS

**LONG & BISBY**

DEALERS IN

Foreign and Domestic

**WOOL AND COTTON**

GENERAL COMMISSION MERCHANTS

**HAMILTON, ONT.****JOHN E. BROWN,**

Foreign and Domestic

**WOOL**77 McNab Street N.,  
**HAMILTON, ONT.****B. Spedding & Co.**

72 St. Henry St., Montreal

Wholesale Dealers in all kinds of Foreign  
and Domestic Woolen & Cotton Rags.  
Paper Stock and Metals. Graded  
new Woolen Clips a specialty.

Agent for

**George Hirst & Sons,** Exporter of Woolen  
Rags, Birstall, England

Telephone 2882.

Cable—"SPEDDING," Montreal.

**The R. Forbes Co.**

(Limited)

Manufacturers of

**WOOLEN AND WORSTED YARNS**

For Hosiery and other work

**HESPELER, ONT.****WOOL****WM. GRAHAM**54 and 56 Wellington  
St. East, **TORONTO**  
Dealer inForeign and Domestic  
**Wools**My manufacturing experience assists me in import-  
ing wool for any desired goods.**THE MONTREAL BLANKET CO.**

Manufacturers of

**Shoddies, Wool Extracts  
and Upholstering Flocks**Office and Works: **COTE ST. PAUL**  
P.O. Address: **MONTREAL****W O O L****A. T. PATERSON & CO.**

MERCHANTS,

Lon. &amp; Lanc. Ins. Bldg.

164 St. James St., **MONTREAL**

REPRESENTED BY MR. DAVID GUTHRIE.

**THE SMITH WOOLSTOCK CO.**Manufacturers and Dealers in all Lines of  
Wool Stock, Shoddies, &c., Graded Woolen  
Rags, Carbonizing and Neutralizing.Best prices paid for Wool Pickings, Woolen  
and Cotton Rags, Metals, &c. Hard Waste, &c.  
purchased or worked up and returned.

319 Front St. E., Toronto | Foot of Ontario St.

**WM. D. CAMERON,**Woolen & Cotton Manufacturers'  
Agent,**HALIFAX, N.S., & ST. JOHN, N.B.**Address P.O. Box 401. - **HALIFAX, N.S.****HAMILTON & CO.****Wool Importers****52 Wellington Street W., Toronto.****F. W. RICHARDSON, Manager.****HAND BOOK**

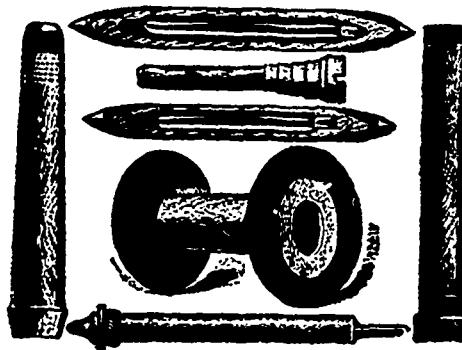
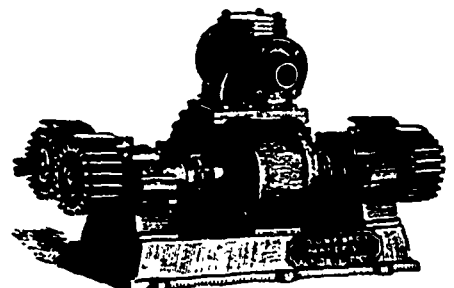
OF THE

**CANADIAN CUSTOMS TARIFF AND  
EXCISE DUTIES**With list of warehousing ports in the Dominion—  
Extracts from the Canadian Customs Acts—Sterling  
Exchange, Franc, German Rixmark, and the prin-  
cipal Foreign Currencies at Canadian Customs  
values, and other useful tables, will be issued at  
close of present session of Parliament.Price—F'cap 8vo, Cloth  
Limp, 50c.

Discount to the Trade.

**MORTON, PHILLIPS & CO.**Stationers, Blank Book Makers  
and Printers

1755 &amp; 1757 Notre Dame St., Montreal

**WILSON BROS.****Wool Importers****38 Front Street East, - Toronto.****B. A. WOOLS and CARBONIZED  
NOILS a Specialty.****The Lachute Shuttle Company**We are the largest Shuttle  
Manufacturers in Canada.Slubbing, Roving and all kinds  
of Bobbins and Spools for  
Cotton and Woolen MillsWe have always on hand  
a large stock of  
Thoroughly Seasoned  
Lumber.Orders solicited and all work guar-  
anteed to give satisfaction.**E. F. AYERS, Manager**  
**LACHUTE, P.Q.****MISSISSIPPI IRON WORKS**ESTABLISHED  
1875Manufacturers of English or American Pulling Mills and Washers, Wool Pickers, Ex-  
haust Fan Drives, Dusters, Rotary Force Pumps for Fire Duty, Roller Food Pumps  
Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.  
Equipment of mills of every kind. **YOUNG BROS., Almonte, Ont.**

**ROTHSCHILD BROS. & CO.**

Importers and Manufacturers of all kinds of

**BUTTONS AND FANCY GOODS.**

Sole Agents for

**JACQUOT & CO.'S FRENCH BLACKING**

Sole Agents for the American Continent



Sole Agents for the American Continent

OFFICES—466 & 468 Broadway, N.Y.  
78 Bay St., Toronto.  
And 56 Faubourg Poissonniere, Paris.

**John D. Lewis,**

Importer and Manufacturer of

**Dyestuffs, Dyewoods, Chemicals and DYEWOOD EXTRACTS**

3 & 4 Exchange Place, PROVIDENCE, R.I.  
Mills: Charles and Bark Streets.

**CARBONIZER**

Much Superior to Acid for use in **Wool, Piece-Goods & Rags.**

Address MERRIMAC CHEMICAL CO.,  
77 Broad St., Boston,  
Mfrs. of Acids and Chemicals.

REGISTRATION OF DESIGNS.

**PATENTS** IN ALL COUNTRIES  
GUARANTEED  
**BEAUDRY & BROWN**  
CIVIL ENGINEERS AND LAND SURVEYERS

107 ST. JAMES ST., MONTREAL  
WRITE FOR BOOKLET.



**Machine Drawing**

IT WILL PAY YOU to send for a copy of Bentley's Book

**"Sketches of Engine and Machine Details"**

if you want to learn to draw Machinery.

Bound in Cloth, and will be sent post free for 75c.

BIGGAR, SAMUEL & CO.,  
FRASER BLDG., MONTREAL.

Established 1848.

**A. EICKHOFF**

(A. KRAMER, Proprietor)

Manufacturer and Dealer in

Hatters', Furriers', Tailors'.

Glovers' and Shirt Cutters

**KNIVES AND SCISSORS.**

Knives for all kinds of business always on hand and warranted. All kinds of Cutlery ground and repaired.

No. 381 BROOME STREET,  
Between Broadway and Bowery,

**NEW YORK CITY**

**ELLIOT** Send for Circular.

**Cloth Folder and Measurer**

For Cotton and Gingham Mills, Bleacheries, Print Works, etc.

Manufactured by **Elliot & Hall, Worcester, Mass.**

**WILLIAM CRABB & CO.**

Manufacturers of all kinds of

**Hackle, Gill, Comb and Card Pins, Picker Teeth, Needle Pointed Card Clothing in Wood and Leather for Flax, Jute, Tow, etc.**

Hackles, Gills and Wool Combs made and repaired; also Rope Makers' Pins, Picker Pins, Special Springs, Loom and Shuttle Springs, English Cast-Steel Wire, Cotton Banding and General Mill Furnishings.

Bloomfield Avenue and Morris Canal, NEWARK, N. J.



**JOHN W. BARLOW**

Manufacturer of

**LOOM PICKERS,**

LAWRENCE, MASS.

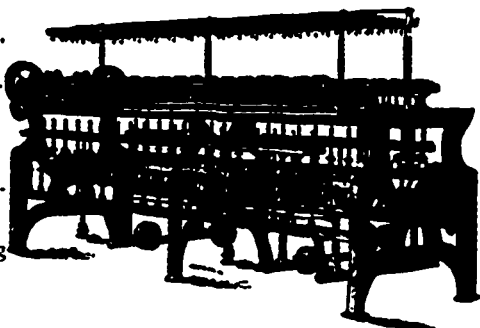
This cut represents Barlow's Pat. Bow Picker with solid interlocking foot. Pat. Feb. 26, 1889.

**H. W. KARCH,**

HESPELER, ONT.

Manufacturer of

Woolen Machinery  
Rotary Fulling Mills, Kicker Fulling Mills, Soaping Machines, Cloth Washers, Wool & Waste Dusters, Rag Dusters, Drum Spool Winders, Reels, Spooling & Doubling Machines, Ring Twisters, Card Creels,



Dead Spindle Spooler for Warp or Dresser Spools,

Pat. Double Acting Gigs, Dyeing Machines.

The Denn Warping Machinery.

Linking Balling  
Slasher Beam

**WARPERS**

100 to 3,200 Ends

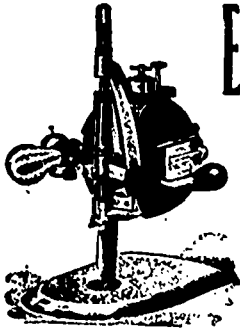
Electrical Stop-Motions Applied to all Creels

SEND FOR CATALOGUE

**GLOBE MACHINE WORKS,** Oxford St., Frankford PHILADELPHIA



# ELECTRIC CLOTH CUTTING



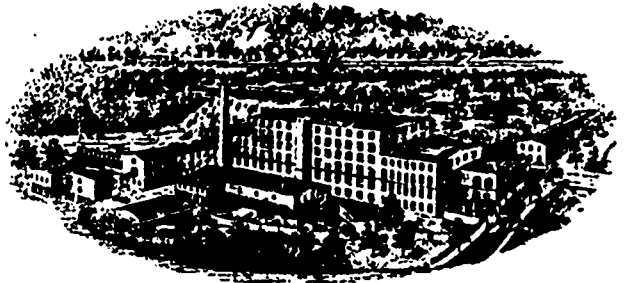
The Eastman Electric Cloth Cutter is being used by all up-to-date manufacturers of clothing, cloaks, mantles, shirt waists, blouses, shirts, underwear, overalls, pants, duck clothing, &c., &c. It makes a clean and accurate cut up to 3 1/2 ins. high. Cuts 24 dozen white shirts in one cut. All machines put on trial free. Hundreds already in daily use in Canada and U. S.

Headquarters in U. S., 45 North Division Street, Buffalo, N. Y.

**EASTMAN MACHINE COMPANY,**  
247 Yonge Street, Toronto, Ont.

# ROSAMOND WOOLEN CO.

ALMONTE, ONT.



*Fine TWEEDS, CASSIMERES, and Fancy WORSTED SUITINGS AND TROUSERINGS*

Colors warranted as fast as the best British or Foreign Goods.

# Dominion Oil Cloth Co'y

MANUFACTURERS OF Limited

# Oil-Cloths

of every description

Floor Oil-Cloth, Table Oil-Cloth, Carriage Oil-Cloth, Enamelled Oil-Cloth, Stair Oil-Cloth, etc.

Office and Works:

Corner St. Catherine and Parthenais Sts., MONTREAL, QUE.

# New England Ventilating and Heating Co'y

Providence, R. I.

Manufact'rs of

Richardson's Revolving Ventilator

For use where power is not available.



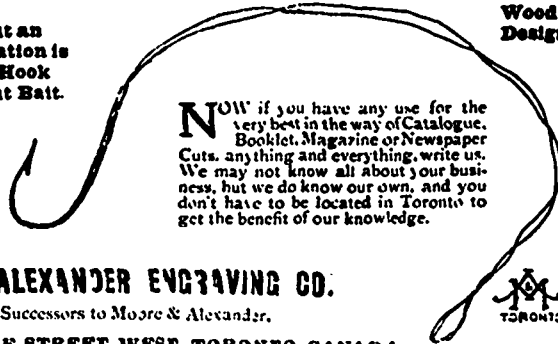
This Ventilator is balanced, has ball bearings and revolves with the least perceptible current of air, having no obstruction to its outlet, and never fails to give satisfaction. Specially adapted for Mills, Dye Houses, Workshops. They are so completed that any carpenter can erect them.

OFFICE AND WORKS:

926, 928 & 930 Manton Avenue

An Ad. Without an Illustration is Like a Hook Without Bait.

Half-Tone Zinc Etching Wood Engraving Designing



**N**OW if you have any use for the very best in the way of Catalogue, Booklet, Magazine or Newspaper Cuts, anything and everything, write us. We may not know all about your business, but we do know our own, and you don't have to be located in Toronto to get the benefit of our knowledge.

**MERIT ALONE WON'T BRING BUSINESS**

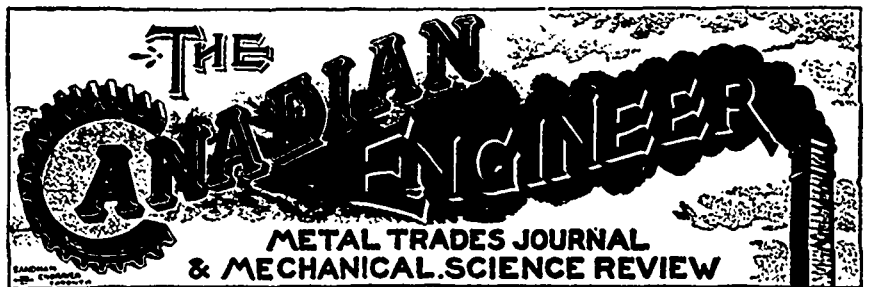


We have learned this by experience.

**THE ALEXANDER ENGRAVING CO.**

Successors to Moore & Alexander.

16 ADELAIDE STREET WEST, TORONTO, CANADA



METAL TRADES JOURNAL & MECHANICAL SCIENCE REVIEW

ISSUED MONTHLY IN THE INTERESTS OF THE

CIVIL, MECHANICAL, ELECTRICAL, LOCOMOTIVE, STATIONARY, MARINE, MINING, AND SANITARY ENGINEER; THE MACHINIST AND FOUNDER, THE MANUFACTURER AND CONTRACTOR. SUBSCRIPTION, \$1 - - A YEAR - -

THE CANADIAN ENGINEER stands to-day unrivalled among Canadian trade papers for the wide distribution and character of its circulation. It has in fact the largest circulation of any trade journal in Canada.

Sample copies sent free to intending subscribers. Advertising rates on application

**BIGGAR, SAMUEL & CO., Publishers**

FRASER BUILDING, MONTREAL.

62 Church Street, - - - - - TORONTO

JOHN SHAMBOW, Treasurer.

# Woonsocket Reed and Shuttle Works

**WOONSOCKET, RHODE ISLAND**

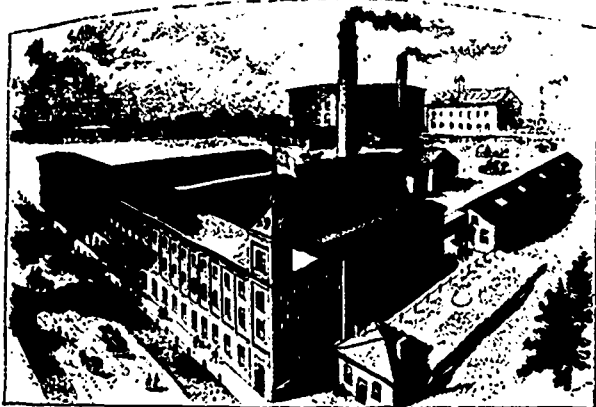
Makers of Every Description of

## Power Loom Shuttles

**Hamilton Cotton Co., Hamilton**

MANUFACTURERS OF

White and Colored Yarns, Single or Double, Hosiery Yarns of all descriptions, Warps, Twines, white or colored Webblings & Bindings in great variety, Lampwicks, etc.



**RICHARD SCHOFIELD, 14-16 Court Street, TORONTO**



Manufacturer of all kinds of POWER KNITTING MACHINES, Cylinder Dials, Cams, Yarn Guides, Cut Presses, Mill Supplies, Fluted Rollers, Gear Wheels, Worm Wheels, Moulds, &c., &c.

**SPECIAL MACHINERY**

SELLING AGENTS

**WM. B. STEWART, 18 Front St. East, Toronto.**

Agent for Warps: **GEO. REID, 118 Duke Street, TORONTO**

ESTABLISHED 1859

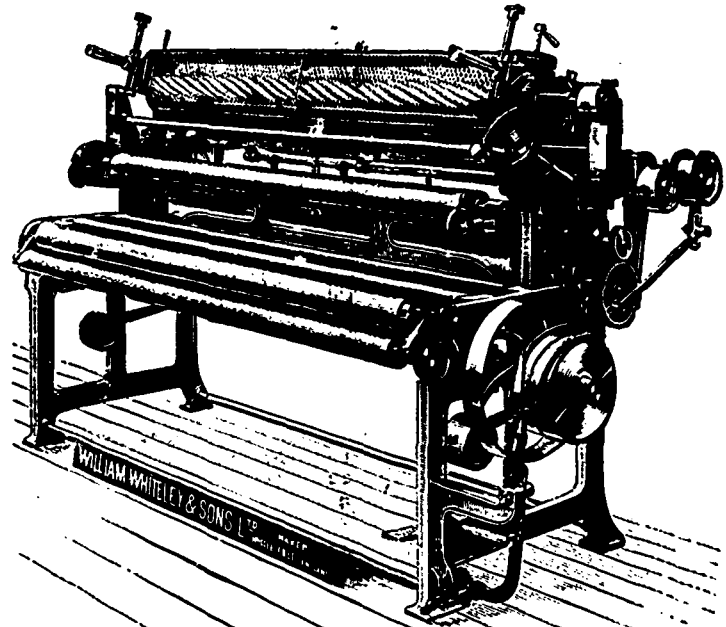
**THE C. TURNBULL CO.,**  
OF GALT, Limited.

MANUFACTURERS OF

Full Fashioned Lamb's Wool Underclothing, Hosiery and Knitting Yarns, Perfect Fitting Ladies' Ribbed Vests, Sweaters, Jerseys, Knickers.

**William Whiteley & Sons, Ltd.**

**LOCKWOOD, HUDDERSFIELD, ENGLAND**



Complete Cloth Finishing Plants  
Tentering and Drying Machines  
Wool and Cotton Drying Machines  
Improved Self Acting Mules  
Winding, Warping and Sizing Machines  
and other Woolen Machinery

Mercerizing Machinery. Complete Plant for Aniline Black

CATALOGUE ON APPLICATION.

THOMAS KER

J. HARCOURT

**KER & HARCOURT,**

ESTABLISHED 1857



Orders by Mail  
will receive prompt  
attention

**Parry Sound, Ont.**

# Stretchless Leather Belting

Is the Latest and Most Important Development  
in the Belting Business

## HENRY F. COCKILL & SONS

LIMITED

CLECKHEATON, ENGLAND

SOLE MAKERS OF

**"STRETCHLESS"** and **"SPECIAL ALPHA"** Brands of Leather  
Belting, Link Belting for Dynamos

LARGEST MAKERS IN THE EMPIRE OF CONDENSING APRON LEATHERS

**OTHER SPECIALTIES—**

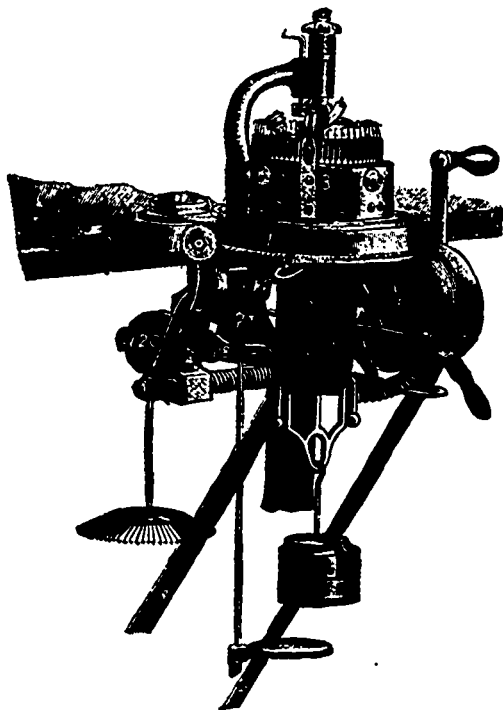
Endless Belts for Portable Engines, Dynamo Belts, Raw Hide Belting, Solid Woven Hair Belting, Cotton Belting, Roller Skins, Special Cemented Mule Strapping, Loom Strapping, "Helvetia" Lacing and Belting, Helvetia Lathe Band Twist, Round Tanned Leather Bands, Raw Hide Rope, Soft and Hard Spinning Leather, Combing Leathers, Picking Bands, Side Straps, Check Strapping, Lashing Laces, Sewing and other Laces, and every kind of Leather for textile and Mechanical purposes.

SOLE CANADIAN AGENTS

### George Reid & Co.

11 and 13 Front Street East

TORONTO, ONT



## Seamless Hosiery Knitting Machines

We have been hard at it for nearly one-third of a century.

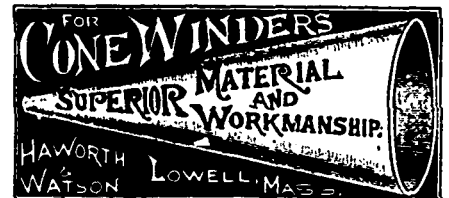
We have had Success.  
Our customers have had Success.

### Why?

Merit and Superiority in our Machines tells the story. Catalogue free.

## CREELMAN BROS.

Manufacturers  
GEORGETOWN, ONTARIO, CAN.



You are interested in the

## METRIC SYSTEM

Look for the Advt. of the  
Metric Chart in another  
part of this issue.

CHINA CLAY—Finest and Low Qualities  
CEMENT— " " "

"BIRD & STAR" & "LION" BRANDS

**FREEMANS** (Shippers)  
29 Bucklersbury, LONDON

Established 1833.

41 Highest Awards.

# Wilson Brothers Bobbin Co., Limited

Telegrams "Wilson, Cernholme"  
A.B.C. and A1 Codes used.

## BOBBINS & SHUTTLES

POSTAL ADDRESS:

Cernholme Mills, ALSO Atlas Works,  
Todmorden. Liverpool.

OFFICE

14 Market Place, - - - Manchester.

The best results in  
**Card Grinding**  
are obtained by using



**DRONSFIELDS PATENT  
GROOVED EMERY FILLETING**  
SPECIALITIES. MACHINES FOR GRINDING CARDS  
MACHINES FOR COVERING ROLLERS WITH LEATHER

**DRONSFIELD BROS. LTD.**  
Atlas Works, **OLDHAM, ENGLAND.**

COUNTY C.

# NORTHROP IRON WORKS

IRON & BRASS FOUNDERS.

HEATING & VENTILATING ENGINEERS.

Office and Showrooms:

296 St. James Street,  
MONTREAL

'Phone, Main 4180



REGISTERED

Works and Head Office:

VALLEYFIELD, P.Q.  
CANADA

'Phone No. 2

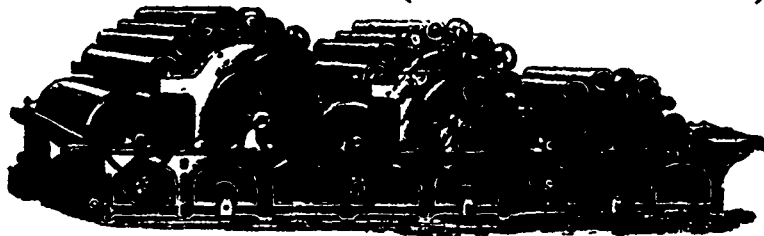
Manufacturers of . . . .

WRITE FOR QUOTATIONS.

"Handy" Elevators. Steam, Hot Water and Gas Radiators. "Handy" Dumb Waiters. Sectional Heating Boilers. Plain and Automatic Looms. Spoolers. Warpors. Fire Door Fixtures. Sanitary Outfits for Mills and Factories. Ventilating and Exhaust Fans. Tool Grinding Machinery. Nickel and Bronze Plating. Patent Hangers and Couplings. Model and Patent Machinery.

## TEXTILE MACHINERY (New and Second Hand)

## CARD CLOTHING TETLOW'S



English Sales Attended.

Condenser Aprons Stock in Canada  
Buffed Surfaces  
Plain & Grooved

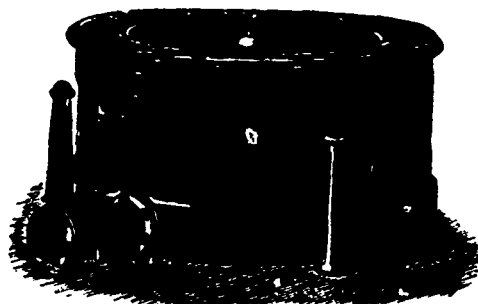
Oak-Tanned and White Belting  
Cotton Banding, Rim Spindle and Braided  
Shuttles, Pickers, Heddles, Harness  
Patent Frames, GENERAL FURNISHINGS

ROBT. S. FRASER

17 LEMOINE ST., MONTREAL

# BROADBENT'S HYDRO EXTRACTORS

OVER 3000  
IN USE



THOMAS BROADBENT & SONS, Limited, Huddersfield

BUY OUR  
**CARD CLOTHING**  
 BECAUSE IT IS  
**ALL ENGLISH**  
 LEATHER & CLOTH BACKINGS  
 HARD & TEMPERED WIRE  
 MACHINERY  
**WORKMANSHIP**  
 MADE HERE AT HOME  
 ASK FOR SAMPLES & QUOTATIONS  
 THE **J.C. McLAREN BELTING CO.**  
 TORONTO FACTORY MONTREAL

**SAMUEL LAWSON & SONS, LEEDS, England**

—MAKERS OF—

**Machinery for Preparing and Spinning  
 Flax, Tow, Hemp and Jute**

**Special Machinery for the Manufacture of Binder and Ordinary Twines**

**Good's Patent Combined Haekling  
 and Spreading Machine**

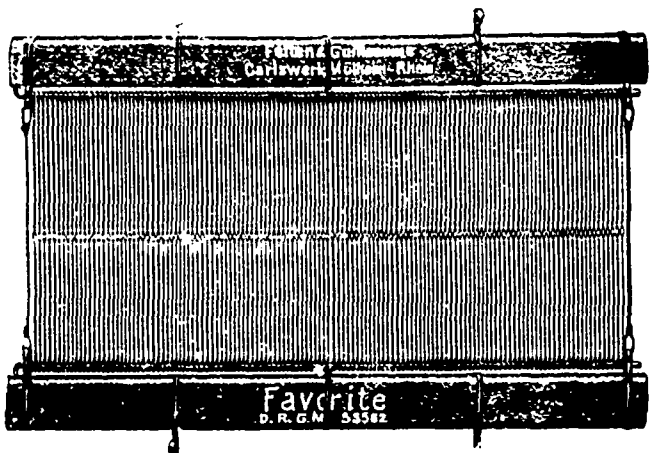
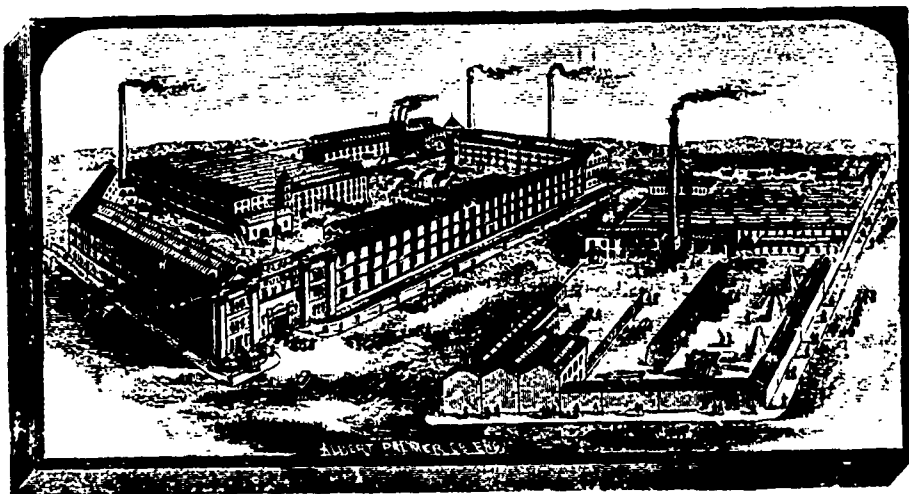
**Patent Automatic Spinning Frames  
 Improved Laying Machines**

and other special machinery for the  
 manufacture of Rope Yarns.

ALSO OF

**Brownell's Patent Twisting and Laying  
 Machines for Twines**

Council Medal, London, 1851, Grand Medal,  
 Paris, 1867, Prize Medal, Moscow, 1872; Diploma  
 of Honor, Vienna, 1873; Highest Award, Phila  
 delphia, 1876; Gold Medal, Paris, 1873; Highest  
 Award (Medal), Melbourne, 1880



*Tollen & Guilleaume, Carlswerk  
 Actien-Gesellschaft, Mulheim-en-Rhine*

Manufacturers of

**Tinned Cast Steel Wire Heddles**

made on Patent Automatic Machines and consequently perfectly uniform in every  
 respect. The Lightest, Exactest and most Uniform Wire Heddles ever made, not  
 surpassed by any other Wire Heddles in the market

*Patent "Favorite" Shafts for Weaving*

give, combined with above Heddles, the best, most Reliable and most Durable Har-  
 ness, either made with one or two carrying wires inside the wooden frame. These  
 shafts have already been adopted by a great number of weavers, who speak most  
 favorably of them, as can be seen from many testimonials in the possession of the  
 makers. For Prices apply to

**L. S. WATSON MANUFACTURING CO., Leicester, Mass.**

**L. S. WATSON MANUFACTURING CO.  
 LEICESTER, MASS.**

Sole Agents for the BEST  
 Spinning & Twisting Travelers  
 Made by Prouty Wire Co.



Send samples of the Travelers you use and  
 we will send you a sample box to match  
 of our make free of charge.

**Manufacturers of WATSON'S PATENT MACHINE WIRE HEDDLES**

Guaranteed to be perfectly adapted to weaving all kinds of Woolen, Cotton and Worsted Fabrics, Fancy Cotton, etc., etc.  
 Superior Harness Frames furnished promptly. Also Hand Cards of every description

Also Agents for the SMETHURST Reving and Twisting Gear for all woollen manufacturers and makers of yarns. Write us for particulars.