

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

# CANADIAN JOURNAL of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, SEPTEMBER, 1897.

No. 9.

The United Alkali Company, Limited, of England.



Caustic Soda, 60°, 70°, 74°, 76°, 77°. Soda Ash, all strengths, SAL. SODA. PURE ALKALI, 58°.

WILSON, PATERSON & CO., Montreal, Sole Agents. Importers of Sulphate of Alumina, Hypo Sulphite of Soda, Bichromate of Soda, Silicate of Soda, Caustic Potash, Crystal Carbonate, Borax, Coconut Oil, Palm Oil, Castor Oil, Cotton Seed Oil, Rosin Oil, ROSIN. All Chemicals used by Soap, Paper, Woolen, and Cotton Manufacturers.

NEW YORK OFFICE, - 133, 135, 137 FRONT STREET

McARTHUR, CORNEILLE & CO.

Importers and Manufacturers of

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

310 to 316 St. Paul St.  
MONTREAL . . . . .

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

Bellhouse, Dillon & Co.

SOLE AGENTS IN CANADA FOR

WM. PICKHARDT & KUTTROFF

**ANILINE DYES**  
FAST COLORS  
A SPECIALTY  
**ALIZARINES**

Toronto Office—47 Wellington St. East

30 St. Francois Xavier St., Montreal

New York and Boston  
Dyewood Co. Manufacturers . . of . .

Sole Agents for the United States and Canada for the

**DYEWOOD EXTRACTS**

ACTIEN GESELLSCHAFT FUR ANILIN-FABRIKATION

Manufacturers of ANILINE COLORS, Berlin, Germany.

NEW YORK. 55 Beekman St. BOSTON. 115 & 117 High St  
PHILADELPHIA: 123 & 124 Arch St.

A. W. LEITCH, 16 Hughson Street South, HAMILTON, Ont.

**ANILINE DYES** LOGWOOD  
SUMAC } Extracts  
INDICO

HEMOLIN BLACK, MORIN YELLOW

WM. J. MATHESON & CO., Limited  
423-425 St. Paul Street, MONTREAL

Main Office: 178 Front Street, New York.

Branches: Boston, Philadelphia, Providence.

Works: Long Island City, Port of New York

W. T. BENSON & CO.

31 Common St., MONTREAL

Direct Importers of **FOREIGN WOOL**

And all lines of

**CHEMICALS and DYESTUFFS**

Also COCOANUT AND PALM OIL, and all other Soap Stocks.

Sole Agents for

Messrs. JOHN DAWSON & CO., of GLASGOW

Manufacturers of

Extracts of LOGWOOD, FUSTIC, SUMAC, etc.

Complete stocks of all the above always on hand.

**ANILINES - ALIZARINES**

DYEWOODS, CHEMICALS, ACIDS, ETC.

MARSHALL'S INDIGOS AND ARCHILS

SOLE AGENTS IN CANADA FOR

CARL NEUHAUS—Alizarines, Acetates, etc.

ANILINE DYE WORKS, (FORMERLY A. GEBBER & CO.)—Direct Cotton Colors.

CHEMISCHE FABRIKEN VORM WEILER-TER MEER—Aniline Colors and Chemical Products.

JOHN MARSHALL, SON & CO.—Indigos, Archils, Extract Fustic and Logwood.

SCOTTISH ALUM CO.—Alum, Sulphate, Alumina, etc.

FRANCESCO, BASSO & CO.—Sumac.

JACK & ROBERTSON 7 St. Helen St.  
MONTREAL

# GEO. D. ROSS & CO.

WOOLEN COMMISSION MERCHANTS  
MONTREAL and TORONTO

Tweeds    Etoffes    Shirts and Pants  
Worstedes    Blankets    Fulled Socks and Mitts  
Serges    Yarns    Gloves, Hosiery, etc., etc.

Advances Made on Consignments.

Correspondence Solicited.



## Factory Brushes

AND ALL KINDS OF

### MACHINE BRUSHES

made, and Blocks re-filled.  
Highest quality and best work-  
manship guaranteed, and close-  
est possible prices.

CHAS. BOECKH & SONS, Manufacturers, TORONTO

## DYEWOOD EXTRACTS

Manufactured by

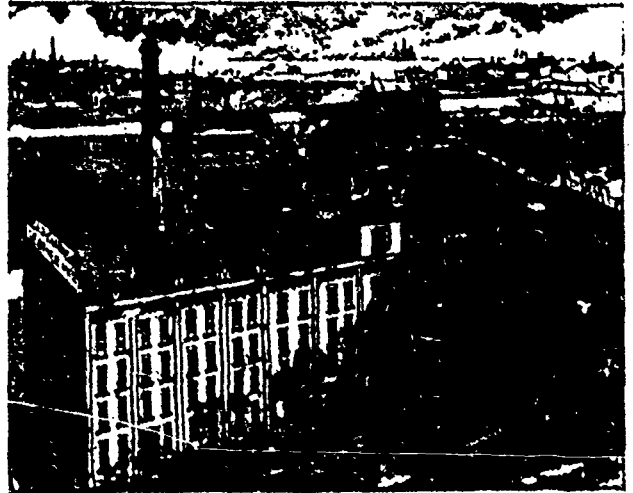
MUCKLOW & CO., - BURY, ENGLAND

DOMINION DYEWOOD & CHEMICAL CO.  
TORONTO

SOLE AGENTS FOR CANADA

A. R. CLARKE    F. O. CLARKE    C. E. CLARKE

# A. R. CLARKE & CO.



Manufacturers of **GLOVES and MITTS**

Office: 28 Front St. East  
Works: 191 to 209 Eastern Ave. **TORONTO**

Branches at Montreal, Quebec, Halifax, Winnipeg and Victoria

## THOMAS MEALEY & CO.



MEALEY STAIR PAD

Manufacturers of  
**Wadded Carpet Lining**  
and **STAIR PADS**  
Hamilton, Ont.

Office:

24 CATHARINE ST. NORTH



**The Beaver Rubber Clothing Co.**

THE PIONEERS IN THIS TRADE IN CANADA.

8 St. Lawrence Street, - **MONTREAL.**

E. L. ROSENTHAL, Manager.

EUREKA



**COVER YOUR PIPES AND BOILERS**

Mineral Wool Sectional Covering.

A large saving of fuel is made.  
Condensation of steam avoided.  
Radiation of heat prevented.

Power of Steam greatly increased  
Risk of fire from heated surfaces avoided.  
Steam carried long distances without loss of power.

EUREKA MINERAL WOOL & ASBESTOS CO., . . . . . 124 Bay Street, TORONTO

## WILSON & COMPANY

DEALERS  
IN ALL KINDS OF

# WOOL

CORNER FRONT AND CHURCH STREETS,  
TORONTO, ONT.

Established 1848.

## A. EICKHOFF

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 Bowers.

**NEW YORK CITY**

# CANADIAN Journal of Fabrics

THE JOURNAL OF THE Textile Trades of Canada.

Vol. XIV.

TORONTO AND MONTREAL, SEPTEMBER, 1897.

No. 9

## Canadian Journal of Fabrics

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

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

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

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

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

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

### THE CANADIAN TEXTILE DIRECTORY

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

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

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

### CONTENTS OF THIS NUMBER:

	PAGE		PAGE
Carpet Designing .....	261	Paper and Pulp .....	275
Carpets, East India .....	270	Scroll Opener Placed in Front of .....	271
Cloth, Poor .....	264	Dyeing Machine, Showing .....	257
Compressed Air .....	266	Silk Weighing .....	258
Costs, Estimating .....	258	Seres, The Big .....	268
Cotton Crop, The .....	265	Textile Centre, Foreign .....	257
Detergent, A New .....	281	Chemicals .....	272
Dyestuffs, Some .....	271	Design .....	273
Editorial .....	257	Imports from Great Britain .....	274
Fabric Items .....	267	Patents .....	263
Flax Cultivation in Ireland .....	273	School, The Lowell .....	229
Finishing Fancy Back Covert Cloths .....	262	Weaving as a Fine Art .....	272
Globe Woolen Mill, The .....	271	Wilson & Ingham, Card Manufac- turers .....	274
Mills Case .....	275	Wool Oiling .....	274
Lowell Textile School, The .....	263	Sorting in England .....	274
Mills, Among the .....	275		

## Editorial.

That cheapness must be had, no matter what becomes of quality, has too long been the world's motto from a manufacturer's standpoint. We are pleased to note a sign of reform in the fact that sixty firms of Zurich, Switzerland, have inaugurated a crusade against the fraudulent weighting which has done so much to destroy the silk industry, and have agreed with dyers that nothing which will deteriorate the fabric shall be used, no matter from whence the order may come. A board of control has been ap-

pointed and the dyers deposit a certain sum, to be forfeited in case of transgression.

### Textile Chemicals.

One among the many sources of profit which Canadian capitalists have hitherto practically overlooked in the development of the country's natural resources, is the manufacture of industrial chemicals. The quantities of the chemicals used in Canada would not support a large industry in themselves, but our facilities for cheap production are so great that in many lines we could build up a large export trade. Calcium carbide, made in Canada, is now exported as fast as it can be produced. This is only the beginning of an enormous industry, as the materials which can be produced economically from this substance are exceedingly varied, comprising benzol, naphthalene, ethylene, ethane. We have unlimited electrical power, carbon and calcium, the only components of the substance, and why should we not produce it and its derivatives extensively? The vast deposits of salt, petroleum, coal, iron pyrites, etc., in conjunction with our cheap water power, should enable us to manufacture on a large scale. The lack of capital has hitherto not been the most serious obstacle to industrial development in Canada but rather lack of enterprise. Old processes are used without the employment of continuous and systematic efforts looking toward the discovery of new. The difference between the illuminating oil produced by Canadian refiners and the Standard Oil Co., from similar crude petroleum is a good illustration of the advantages resulting from continuous effort at improvement. "Rule of thumb" is too often followed in Canadian refineries, while some of the expert chemists employed by the Standard Oil Co. receive salaries of ten to twenty thousand dollars a year. An idea of the profits earned by some of the firms engaged in this trade abroad may be formed from the figures in the following reports:—The Meister, Lucius, and Bruning Dyeworks Co., of Höchst-am-Main, has declared a dividend of 28 per cent. for 1896, as against a similar dividend for each of the three previous years and 26 per cent. for 1892. The gross profit balance showed an increase of £41,650 as against the previous year, but on the other hand the general charges were also increased; the appropriations to the various accounts, moreover, which were decreased in 1895 to the extent of £15,000, were again increased last year to the extent of £8,150. The net profit, £341,555, shows an increase of about £32,000 for last year as against 1895, but the dividend at the same rate absorbs £21,000 more than in the previous year, as, for the first time, the full share

capital of £750,000 participates in the distribution. The balance-sheet of the Badische Aniline and Soda Manufacturing Co. of Ludwigshaven, on the Rhine, for 1896, shows a profit of £400,938 for 1896, as against £394,988 for 1895. The appropriations to the extraordinary reserve fund and to the depreciation and repairs account absorb £107,637 (as against £94,799 for 1895), and out of the remainder a dividend at the rate of 26 per cent. has been declared. A similar dividend was declared for 1895.

#### The Big Stores.

At the approaching session of the Ontario Legislature the departmental store is to be again attacked. Just what form the proposed bill will take is not yet known, but it cannot become a successful law if on any of the lines which similar legislation has followed in other places. The merest novice in company manipulation can find means at once to void the provisions of any Act hitherto brought forward. If the smaller stores made themselves more popular, they would complain less of the competition of the big stores. The big stores are popular because shoppers can view the goods without being subjected to pressure on the part of the salesmen to purchase them. We believe, with a contemporary, that this characteristic of the departmental store has more to do with its success than any other. In an ordinary store, as soon as one enters, an officious clerk steps up to know what is wanted, and when the visitor stops to look at a thing he is asked a number of questions. When he essays to leave, he is questioned again as to whether he found what he wanted, and then as officiously urged to "call again." There is none of this in a departmental store. The customer does all the questioning and the clerks pay little or no attention until they are spoken to. Goods are all displayed where they can readily be inspected. Usually prices are attached. Everybody is treated with the same admirable indifference; the poor woman who buys a five cent doll for her child and the man who buys a wagon load of house furnishings, both get exactly the same treatment. In fact, one can spend half a day in viewing the goods and asking questions, yet if he goes out without spending a cent it is all the same. This perfect freedom to buy or not is, in our opinion, the chief cause of the success of the departmental stores. The business man who wishes to hold his own with these concerns ought to adopt this method of dealing with his customers. As to the cheaper prices that prevail in the departmentals there is no other way to meet this argument than by coming down to the low-water level that the departmental stores have adopted. This can be done only by buying in the cheapest market and by doing business with customers on a cash basis.

#### ESTIMATING COSTS.\*

(Concluded from the July number.)

The goods having left the factory department, many of them have next to be dressed and finished. This trimming and finishing is a special business, only a small percentage of firms undertaking the art. If goods are sent

out for this purpose and brought back ready for the warehouse then a charge would be made by the firm undertaking the same, and so the manufacturer would, in "costing," have a fixed price to include according to the particular finishes put upon the goods. But, as there are firms who do dress their own product, it must be noted that this department will require to be "costed" upon similar lines to those laid down in the factory department.

In cotton goods there are three main classes of finishing, known as the "brown," "bleached," "dyed." In the first, usually only boarding is resorted to, at a few pence per dozen; but with bleached goods material and labor are to be calculated, and unless a strict watch is kept over this department, waste may occur at every point.

It is imperative that careful tests shall be made of certain lots, noting the quantity of lea used for each process. This lea must also be "costed" in order to arrive at the accurate cost of the material employed, as in bleaching, several boilings are required which extend over certain time.

Again, the plant of a bleach house is always subject to a certain depreciation which has to be accounted for, so that to be correct three items must have attention, viz., material used, labor employed, and depreciation of plant. When these are studied, and a price is fixed, it is added to that of manufacture.

In dyed goods similar rules must be observed as with bleaching. Dye liquors, mordanting liquors, etc., besides the drying and pressing processes, must all have attention, so that an average according to color can be determined per pound. Thus, the weight of goods being known, the actual cost can be, with some degree of certainty, ascertained.

With wool goods come the processes of scouring, milling, brushing, stoving, drying and legging, all again to be calculated in the productive powers of the plant and the goods finished in accordance with such power. Worsted goods, having their especial treatment, are subject to a like routine to ascertain the cost of department. All these points considered, there are still those of rates, rents, taxes, and last but not least, management has to be considered in order that this department, like the last, shall show when the year ends that it has proved remunerative.

In the making-up department we have much to take our attention, according to the class of goods being produced. Here half-hose have mending, pairing, putting into dozens, boards, paper and string to be included; while in shirts we have making up proper to consider, as cutting necks, stitching, making of front bits, putting on of same, buttons, button-hole making, and material used in these processes, besides the looking over, mending, packing department, and string, paper, labels, etc., used here, with cost of labor, besides the usual warehouse expenses previously referred to.

Pants, Combinations, Jerseys, Jersey suits, Cardigan, golf Jerseys, and innumerable other articles, all require consideration of small details, so that eventually, including the expenses of making, finishing, and warehouse work, the prime cost of each article can be known.

\* By J. H. Quilter, from the *Textile Record of America*.

This prime cost should be a cost including every minute detail that any garment may have had to undergo.

Having convinced ourselves that the price now set forth does include these, we have not only this to consider as being the prime cost, but to this there are to be added discounts and profits, each in themselves important points.

Few goods are sold but under conditions that from the invoice price an allowance shall be made to the purchaser in the way of a discount. And, again, no business can be successful unless a profit is made upon the prime cost of the article. These we have now to consider.

It is not for me to state what these items shall be upon any particular class of goods, but simply to show rules by which any discount or profit predetermined can be obtained by calculating the same on well-known rules.

This question of discount on profit and the methods of adding to prime cost has been a rock upon which not a few have struck, causing destruction, for unless this matter is carefully studied the proper selling price of the goods cannot be accurately obtained.

A few examples will suffice to show an accurate method for obtaining this. How many are not misled when a question such as this is submitted?

An agent purchases £100 worth of raw material, subject to 50 per cent. discount, and sells again, allowing 60 per cent. discount.

At a glance 10 per cent. is usually the answer given, but in reality his loss is 20 per cent.

In putting on discount and profit a similar error may be made.

We have an article, the prime cost of which is £1. We allow a discount of 25 per cent. and wish to make 25 per cent. profit. What is selling price?

Twenty-five per cent. profit and 25 per cent. discount is 50 per cent. Fifty per cent. on £1 equals 10s. Selling price, £1 10s. So many would figure. Let us see where they are:

Selling price .....	£1 10 0
25 per cent. discount, 25 per cent profit	
= 50 per cent. ....	0 15 0
	<hr/>
	£0 15 0

Leaving 15s. instead of prime cost £1. Thus, the purchaser takes his discount 7s. 6d., leaving but 2s. 6d. as profit instead of the 25 per cent. figured on. To realize which, the selling price would have to be £2. Showing discount of 10s., profit of 10s., and prime cost £1. Thus it is on the selling price that both discount and profit are required, and this is not known at the time of adding the same, so that a rule is necessary. The one used by our leading merchants is as simple as one could wish, and is as follows:

**Rule.**—As the percentage of discount and profit combined is to the per cent., take one denominator less; this proportion of prime cost added to same gives selling price.

**Example:**

Prime cost, £100, discount, 2½ per cent.; profit, 7½ per cent. Discount and profit = 10 per cent.

As 10 per cent. : (per cent. = 100) as 1-10th so take 1-9th of prime cost.

$$£100 \div 9 = £11 \text{ 2s. } 2\frac{1}{2}\text{d.} = £111 \text{ 2s. } 2\frac{1}{2}\text{d.}, \text{ selling price.}$$

Selling price .....	£ 11 2 2½
10 per cent. off .....	11 2 2½

Leaving prime cost ..... 100 0 0

The above shows that by the application of the rule given, the prime cost will be left in each case, which must be so if the fixed capital of the business is to remain intact. One or two examples of this rule as below will suffice and bring this article to a close, in which attempts have been made to show the importance of treating business calculations on pure arithmetical lines, and not by rule of thumb. There is not a doubt that neglect of calculation of yarns where there is a mixture of counts or of different fibers, neglect of careful calculation of waste and inaccuracy in estimating selling price from prime cost have been three of the greatest rocks against which an apparently safe manufacturing vessel has struck, and finally been brought to destruction. It does not require a storm—a steady sailing on an apparently smooth sea will in a long voyage severely test any imperfection on the points, viz. :—

Prime Cost.	Profit and Discount.	Selling Price.
£0 7 5	7 per cent.	£0 7 11½
0 17 4	17½ "	1 1 0½
0 19 9	22½ "	1 5 5½

**WEAVING AS A FINE ART.\***

(Concluded.)

**TWILLS.**

This class of cottons is similar in the furrows or lines shown upon the cloth in the drills, with the exception that they are not limited as to divisions, and while the lines run the round of the cam or pattern chain on the dobbie, they agree with the harness draft and are justly termed a straight twill. The shoe twill has a special construction, and its uses are confined entirely to the manufacturers. They should be made on the following lines:—

For Sleys.

- 72 x 36—No. 12 warp and No. 16 weft are the sizes.
- 80 x 40—No. 12 warp and No. 20 weft are the sizes.
- 96 x 48—No. 16 warp and No. 24 weft are the sizes
- 104 x 52—No. 20 warp and No. 30 weft are the sizes.

These goods are entirely warp-faced, and to give the lines prominence they are given two warp threads to one of weft. The character of the cotton used in making the warp should be selected so that in finishing the threads will not become soft. Bottom-land coarse-fibre cotton, that will give a round, hard thread under liberal twist, is the right kind to use in making warp yarns for these goods; to ease the weaving of the heavy warp and to draw the threads taut and snug, the cam, if one is used rather than a dobbie, should be constructed so that the harness will remain stationary three-fourths of the revolution of the whole circle. The whip roll and breast beam should be nearly or quite as low as the race of the lay. The whole effort of the master weaver should be to hold each warp thread taut and snug, and thus with a properly prepared warp give a clear, smooth and firm face to the goods.

\* Paper read by Alfred Hawkesworth, Montreal, Canada, Province of Quebec, before the New England Cotton Manufacturers' Association, April, 1897.

The high sleys are desirable in these goods to enable the lines to run nearer to a right angle, and the coarse warp to give the line a round and wiry appearance. An even number of divisions should always be used in making these twills, to assist in the prevention of slack shedding. The four-harness weave of 4, 3, 2, 1, and the harness draft the same, is quite frequently used, and it is the best on account of its convenience in handling. The Prunella twill is frequently made with warp sleys as high as 200, containing 40 to 50 lines per inch. The high sleys in these beautiful goods cause the lines to appear almost like single-warp threads. The reed draft should be a full round; that is, four threads in each dent, and there is little danger of warp marks in the goods on account of this, for the crowding of the warp will easily fill up the interstices.

In the Prunella division of shoe twills superior cotton, Egyptian or sea Island, should be used in the warp. The weft of these twills should be spun with quite soft twist or the reverse of the warp, and in this case, the appearance of the goods will be all the better for it. The idea is to draw out the warp threads as straight as possible, rolling them over the weft so that they will look as near like a twisted or twilled thread as possible when the fabric is built. It is to the perfection of the twilled lines that these goods owe their comparative value, and a proper knowledge of the sizes of yarns combined with the sleys of warp, and the effect on these lines produced by giving prominence, or to flatten by increasing the angle of these lines across the cloth. A desirable weft-faced fabric can be made with this weave if a very soft twisted yarn is used and with sleys as high as 68 to 76, with 8 to 12 picks per inch of weft more than the number of warp threads; also, a difference in numbers of yarn, about the same giving the coarser yarn for the weft.

The printer can obtain beautiful effects from these goods in large figures suitable for draperies. To get the best results from this class of twill the weft should be made from soft, clean cotton, or rather all the efforts should be put into the weft. If a fine fabric is wanted, very fine wefts may be used, and a much greater number of picks per inch used than threads per inch of warp, with corresponding improvement in the goods.

#### SILESIA OR LINING TWILLS.

In direct opposition to the shoe twill or drill, the silesia is a weft-faced fabric, and while other forms of twilled goods have a reverse, are equally twilled on both sides. These goods, properly made and finished, are a very artistic staple in the dry goods trade, commanding a high price proportionate to the labor and cotton used in producing them. The silesia does not require a tape selvage, it being woven practically with one-half the warp above the shuttle, it will not curl when slacked or in finishing, unless the threads are too much doubled on the edges, and by this means woven too tight or stretched by uneven shedding or an uneven cloth roller. The construction of these goods for the best effects should be:—

For Sleys

$\left. \begin{array}{l} 72 \times 72 \\ 80 \times 80 \end{array} \right\}$  No. 28 warp and No. 28 weft are the sizes.

$\left. \begin{array}{l} 88 \times 88 \\ 92 \times 92 \end{array} \right\}$  No. 32 warp and No. 32 weft are the sizes.

These goods are easily woven, and the sleys can be increased to a high limit, together with very fine yarns, but for the very best effects sleys should be square or of even number, and so should the yarns. Very good effects can be obtained by using a weft about ten numbers coarser than the warp and reducing the picks proportionately. But still, if we are not considering price, but looks, the rule of "square goods" is just the thing. The twist in warp yarns should be regular as well as the weft. Soft upland cotton is quite desirable for use in making these goods. If for very high sleys, Egyptian cotton will add much to their appearance when finished or in the gray. The weave of these goods should be 4, 2, 3, 1, with harness draft 4, 3, 2, 1. This will divide the warp so that the one-half forming the lower face will be alternated with that forming the upper face when shedding. The cam should be arranged so that all changes will take place at exactly half the revolution, and the corners of the divisions of the cam should be nicely rounded so that a smooth, easy movement will be given to the harnesses. The reed draft should be two threads in each dent in every case, or, no matter how fine the reed wire is, the gray cloth will have reed marks. The harness draft, as well as the movement of the cams, crowd the warp yarns upon each other. To avoid this a low whip roll and breast beam will assist the tight forming of the twill lines and rather separate than otherwise the different threads of the full draft. The silesia twill is often carried into the making of wide sheetings, and when No. 24 to No. 26 weft are used in sleys as high as No. 80, with warp about four numbers coarser, a very superior fabric is the result. Night-robe cloths are likewise made in this twill, but with lighter sleys and slightly coarser wefts. A very elastic and soft fabric is quite easily made in this way. This twill, under higher sleys and finer yarns, can be used by the printer in effects suitable for pajamas and other fabrics of undress wear.

#### SATEENS.

The sateen may be justly termed a broken twill, or rather a twill whose line is multiplied in such a manner that the weft will present two or more lines or even no lines on the face of the finished fabric. The sateen is decided weft faced to such a degree that the warp threads are entirely hidden in the higher picked goods. This fabric seems to have been specially constructed to show the fine qualities of the higher grades of cotton. Combed yarns made from Egyptian or Sea Island cotton are the very best that can be used in the weft, giving a beautiful lustre in the best grades.

We learn from the older works upon weaving that a full satin or sateen weave should be made from sixteen divisions of the warp, and that such a weave should read 16, 14, 12, 10, 8, 6, 4, 2, and then 15, 13, 11, 9, 7, 5, 3, 1, or 16 picks to the round. This weave will form just as the 5-division or shade sateen, two lines, or rather by building one line upon the even and one upon the odd harness, as the fabric is being woven.

For very high picked goods, with a corresponding warp to bind the weft, the greater divisions are preferable and assist the laying in of the weft, or, I might say, in

getting the weft nearer a straight line. The nearer we can get the weft in a sateen to a straight line with but little binding and heavily picked, the more artistic a piece of goods we are making.

In constructing any grade of cotton sateens the very best rule to follow for sleys, until the goods become quite expensive, is to make the weft in count per inch twice the number of threads there are in the warp. The yarns should follow the same rule in the higher sleys and nearly so in the lower. The sleys should be as follows:—

For Sleys.	
60 × 120	} No. 25 warp and No. 40 weft are the proper sizes.
65 × 130	
70 × 140	} No. 30 warp and No. 50 weft are the proper sizes.
75 × 150	
80 × 160	} No. 40 warp and No. 70 weft are the proper sizes.
85 × 170	
90 × 180	} No. 50 warp and No. 100 weft are the proper sizes.
100 × 200	

You will note here that in the formula of construction both warp and weft are multiples of five. This may seem a small matter, but practiced, particularly in the warp, will assist in keeping the weft nearer the straight line. The lay out of both warp and weft agreeing with the cam and the harness draft, the building of the fabric will be humored, and by its regularity the face of the cloth improved. In the sateen, more than in any other piece of cotton goods, it is absolutely necessary that the shedding should be true and even. The harnesses should be knitted with the eyes perfectly even. The binding threads of the weave should press upon the weft true, and not later at one edge than upon the other. Every eye in the harness that is longer than its neighbor encourages irregularity in the face of the goods. The shuttle-throwing arrangement of the loom should be nicely adjusted so that no more weft will be unwound than is necessary at each pick. Slack weft following the shuttle will give a much smoother middle to the cloth than will be found upon the edges for about ten or twelve inches on each side. The master weaver can assist in preventing this error by starting the cams late to make its changes, and thus holding the sheds open until the shuttle has a chance to draw the weft tight while it is being checked in the receiving box alternately.

The method of building sateens with five divisions, and, of course, five cams, while it is the handiest and likewise the most frequently used, is subject to a great deal of criticism on account of the danger of slack shedding, and consequent irregularity of binding the weft. This comes from the same cause that we find in the drills. The cams being of an odd number, there is not an even pull and draw. The necessary number of loops and rollers that are required to give and take the slack from the cams are very liable not to be adjusted with that nicety that will give even and regular shedding.

The even number of divisions above four is preferable on the higher sleys, and the "dobby" can be used then with the very best results. If an attempt is made on the lower sleys to use a four harness cam arranged so that it will build two lines of twill, one upon the odd and one upon the even harnesses, the twill lines, on account of the shorter distance between the binders and the great number

of picks per inch required for the face will make the twill lines run too near a right angle, and thus destroy the sateen effect. If a higher sley is used the corresponding picks of weft must be used, so that this will still make the twill lines more prominent than in the lower sley.

From some practice, as well as study, I am of the opinion that an improved "dobby" is the best shedding arrangement for even a five-division sateen. It may not be quite as handy as the cam, but of this I am not so sure. Of course, I would avoid all spiral springs and jacks, and employ the long-lever doobby, and thus while pulling from above draw with a positive effect from below in moving the harnesses.

The low whip roll and breast beam are required in weaving these goods, so that the yarns will have no chance to hang loose above the shuttle and not bind the weft with precision. The tape selvage is quite necessary in finishing these goods, and it should be woven as loose as possible, by either doubling the picks of weft before crossing, or spreading them in the reed. If this is not done curled selvages are soon complained of.

The softer and lighter weft is so easily controlled by the heavier warp yarns that it is sometimes quite difficult to prevent this curling when the goods are being finished. Even shedding, true and parallel lines in beam, whip roll, breast beam, lay and cloth roller, together with no stretching of selvages by doubling of threads and frequent crossing, will be found to be the remedy.

Weaving as a fine art can find its best expression in the building and arranging of fancy goods, but it is a subject of such magnitude that I will not attempt it in this paper, that has now grown too long. This part of the paper, I will defer to some future meeting or give place entirely in this line to some one more capable of doing it justice than myself.

#### CARPET DESIGNING.

THE FIRST WOMAN CARPET DESIGNER IN THE UNITED STATES.

Syracuse can claim the distinction of sending out the first woman carpet designer in the United States in the person of Mrs. Florence Cory, daughter of J. E. Hall and granddaughter of the late Judge J. L. Hall, says a contemporary. Along in 1888, in order that she might become self supporting, Mrs. Cory conceived the idea of designing carpets. One day, while making a desultory study of a very ugly carpet, the idea occurred to her that she could design a prettier pattern, and without a word to any one as to her object, she went by herself and drew a design, which she sent to a carpet factory at Auburn. The manager wrote back a most encouraging letter, kindly offering a few practical hints, which, after application, the design was bought for \$15. This so encouraged Mrs. Cory that she immediately decided to train in this branch of industry. Ascertaining that designs were in great demand, so great that this country could not meet it, and also learning for the first time that there were no women designers, she determined to master the practical designing for carpets, if possible. She then began visit-



ing the carpet departments of the larger stores, and would sit for hours studying the different fabrics. She would also buy samples, study and ravel them, until after a time solved for herself many practical problems, and finally, unaided, made a practical design for a body brussels. Her ingenuity and cleverness so pleased the president of the carpet trade in the United States that he interested himself in her behalf and introduced her to the designing room of one of the largest factories. Here she was offered some six weeks' free instruction, and subsequent to that time she was called upon to teach in Cooper Union, the first practical class of design in the United States, the first in the world for women. Mrs. Cory, not being content with a knowledge of only one branch of the profession, took up wall papers, which, after visiting and studying in the various factories, she mastered. Then turning her attention to silk, she visited the mills at Paterson, studied the machinery and mastered all the technical points and so on. From one branch of the business to another, she worked indefatigably until all technicalities of the art were at her finger's ends. At this time her fame having gone abroad, application was made by women from all parts of the country for assistance and instruction, in designing, so that in 1881 Mrs. Cory founded the School of Industrial Art and Technical Design for Women.

The experiment of manufacturers employing women has been very successful. More faithfulness to detail and more taste in the matter of coloring and design is exhibited by women than by men. Carpet designing is essentially women's work. It opens a field that is light, pleasant and profitable. As before mentioned, the demand far exceeds the supply each year, and formerly the manufacturers were sending abroad for hundreds of thousands of dollars' worth of designs yearly. One carpet firm alone pays \$100,000 a year for its designs, and of this sum a large portion has heretofore gone to foreign markets; but now that Mrs. Cory has opened up this profession to women, and they have proved so unqualifiedly successful along this line, they are now patronizing home markets almost entirely. The technical knowledge necessary for designing is greater than in any other profession, but now there are numerous schools of design where this art may be learned, and women are developing a wonderful amount of knowledge. The designs from the School of Industrial Art and Technical Design sell to manufacturers in Canada, England, Scotland, China, Japan, France and Germany. Men employed by designers get larger salaries than women, though this is true in other professions, even where the product is the same. A designer for body brussels receives from \$4,500 to \$5,000 a year. A moquette designer receives more, but an ingrain less. One designer for a large carpet manufactory is known to receive \$10,000 a year. Mrs. Cory had a space 20 x 10 at the World's Fair, and hundreds of designs of her own and her pupils were exhibited.

#### FINISHING FANCY-BACK COVERT CLOTHS.

As far as the burling of these cloths is concerned, a radical departure from the usual way of doing things is necessary, inasmuch as the fancy back is to be finished just as good as the face.

Therefore, extra attention must be given to the burling of the fancy back, so that there may be no chance for claims on account of any shortcomings on this part of the work. All knots should be carefully drawn out, the same as on the face, and then left there for future disposal. The mending also has to be performed just as carefully as on the face. Having all these things attended to, the goods are ready for the fulling mill.

It is not out of place to mention that the finishing-room of a mill making any pretensions to being up to date ought to be supplied with a doubling and tacking machine. The work is easier and better performed than can possibly be done by hand, and especially on covert cloths, which sometimes have quite a tendency to rope and roll. The proper tacking is of the utmost importance as a partial remedy for this evil. The soap to be used on these goods requires special attention, and should be of good quality and good body, with the alkali reduced to the safe limit, so as to retain all the brightness of the colors, especially those which are used in the back. They should run in the mill from three and a half to four and a half hours, and the body of the soap needs to be heavy enough to last through this and retain vitality enough to do for the washing also, without adding more. In providing for the ultimate weight of the goods by shrinkage, the fact must be borne in mind that the back will receive as much work as the face, and therefore the shrinkage due to this must receive consideration, so as to have the goods come out up to weight, and of good strength, which is apt to be lacking if this matter is lost sight of.

Having determined the amount of shrinkage, and the soap being properly made, the goods are now left to the fulling process. Here it should also be noted that on fancy backs it is preferable to run them slightly on the wet side—that is, just enough to reduce the friction and waste always due to fulling to the lowest limits. Careful watching is necessary, so as not to let the goods roll too much, if the tendency is that way, and if there is any sign that they will roll more than they ought, they should be taken out, well shaken, and put in again, the other end first, adding a little more soap. This will usually help the matter. After fulling they are taken to the washer; but first the tacking is taken out, which if done by machinery will come out easily. It is also a good plan to pull the goods over a perch to see if they are sound in every respect before they enter the washer. This precaution, although seldom mentioned, is nevertheless one of the important little items in finishing, for in this way any damage done in the fulling mill will be detected at once and can then be stopped without spoiling five or six pieces, which is sure to be the case if goods are not perched here.

Plenty of warm water is one of the necessary items for good work in the washer, but that is not saying that the work cannot be performed without it. Warm water is apt to remove the soap quicker, and if to this is added about a quart of ammonia for each piece, the brilliancy of the colors will be improved. When thoroughly cleansed they are taken to the rolling machine, and tightly rolled up, care being taken to have the place where the rolls are to be laid clean also, that nothing may mar the back. Next morning they are unrolled and at once taken to the napping machine. The face should get one run, then go to the cropping shear to be nicely and evenly cropped, after which the goods are returned to the napper to receive the final treatment. Two runs on each side are now given, and the pieces then passed to the wet gig or brush gig, and both sides given four runs with plenty of water, and again rolled up tightly and stood on end over night. Next morning they are carefully unrolled and placed in the extractor and thoroughly extracted. They are then taken to the brush, and both sides receive a good brushing, when they are ready for the dryer, where they are dried, back up. In the drying of fancy backs the utmost care must be observed to have the goods run into the dryer properly, so as to have the patterns, which are usually plaids, come out nice and even. Nothing

looks worse than to have such patterns crooked, bellied in the centre, or one side ahead of the other. While these are objectionable features on any kind of goods, it becomes at once more noticeable on these.

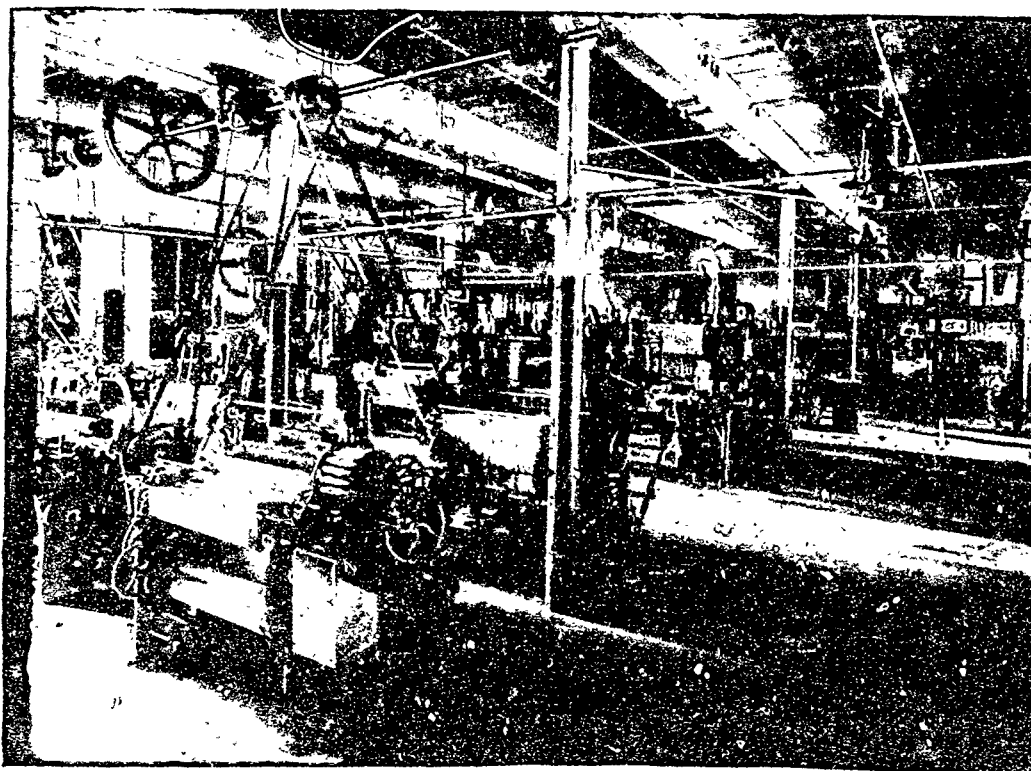
After the goods are dry they should again be carefully buried on both sides, that no knots may be left on either side to hurt them in the shearing process.

A good steam brushing is now in order, which will loosen all the fibres so that the raising brush can get hold of them, which, of course, the back should get as much of as the face. When the goods are sheared low enough they should receive as many runs as time will allow of. It will not do to stunt them here. Another steam brushing will fit them for the press, where they should be pressed hard with the face to the bed, and the face should receive a steam brushing to remove all glaze, which on the back is not necessary. Careful handling throughout the final processes, says the *Textile World*, is more necessary than on any other kinds of goods, on account of the finished back, as any carelessness is apt to show itself at once and unpleasantly.

weaving machine making. In the same room is a collection of machinery showing the various methods of preparing and dressing warps, both for cotton, woolen, worsted and silk fabrics, from the Whitten Mason, Draper, and Lowell Machine Shops.

The cotton spinning room is very complete. In this department it is possible to take a bale of cotton and convert it into yarn without its leaving the school for any purpose. This machinery was built at the works of the Lowell Machine Shop, the Mason Machine Works and the Kitson Machine shop. The machinery is run by electric power.

One of the most attractive rooms is the woolen room, containing as it does a complete set of machines for the purpose of producing yarn from the raw wool. In this room, the pickers, cards, mule, twister, etc., are from the works of the Davis & Furber Machine Co. of North Andover, Mass. The Bramwell & Apperly Feed, by G. S. Harwood & Sons of Boston, while the Burr picker is from the Atlas Machine Co. of Newark, N. J. The chemistry and dyeing section of the school is one of the most important. Several thousand dollars have been spent this summer in equipping the room with all the apparatus that experienced manufacturers on the board of trustees of the school could recommend, or that experienced instructors found advisable. The application of



LOWELL TEXTILE SCHOOL—WEAVING ROOM.

### THE LOWELL TEXTILE SCHOOL.

In the school which is the subject of this article, the Lowell Textile School, Lowell, Mass., there is a permanent collection of textile machinery for the use of the students in the school. The idea of a textile school is not a new one; there is one in existence in Germany, which will in two years celebrate its 50th anniversary, while there are many more modern schools in that and other European countries. There is even one in Bombay, India, and another textile school at Tokio, Japan. In America, there are only two textile schools, but these are important ones, and it has been the good fortune of the Lowell Textile School to have a most complete and thorough equipment. The collection of power looms includes representative machines from almost all of the American loom makers, and looms capable of weaving all varieties of fabrics. Among others, may be noticed a group of jacquards from the Knowles Loom Works, Providence, R. I., and some handsome carpet looms from the shops of the Crompton-Knowles Loom Works, Worcester, Mass., with plain looms, dobby looms, leno looms, lappet looms, and other masterpieces of

art to fabrics is one of the most important subjects that is to be dealt with in a textile school, and in the Lowell school arrangements have been made for the art instruction to form part of the regular course and ultimately every branch of applied art, which can in any degree be considered applicable to textiles, will be taught here whether applied to the artistic adornment of the fabric, or in any subsequent process, such as printing, etc. The arrangement of the school is admirable in every respect, and its equipment includes passenger and freight elevators, electric lights and power produced on the premises, humidifiers, and a complete system of fire protection, and everything that can be considered at all necessary for the equipment of a school or mill.

The instruction is divided into several sections, the principal departments are the day classes for regular students and the evening classes for the people employed in the mills. In the day classes which are held both morning and afternoon, arrangements are made for the training of students in any one of four courses. First, the cotton manufacturing course, second, the woolen manufacturing third, the designing, and fourth, the dyeing. These courses overlap to a con-

siderable extent, so that a student in any one branch attains sufficient knowledge of other branches so far as they appertain to his own section, but the work is specialized as far as possible, so that at the end of the three year course in the school, the student will have the knowledge of a practical manufacturer in one of the four important branches. In the evening school, the work is much more specialized, as the evening students have less time to devote to the work than the day students. The evening students have all the advantages that the day students have in manipulating the machinery and taking the same subjects of study.

The trustees include mill treasurers, agents and superintendents from various parts of the Merrimack valley under the presidency of A. G. Cumnock, of the Boott cotton mills, and the capital invested in the mills they represent amounts to about \$25,000,000. The clerk to the trustees is James F. Smith, secretary of the Board of Trade, of Lowell, to whose initiation and energy the existence of the Lowell Textile School is largely attributable.

C. P. Brookes, who manages the school, has had thirteen years

Catalogues, giving course of instruction and other information, may be had from Director Brooks, Lowell, Mass.

### POOR CLOTH.

The following letter appeared in a recent issue of the *Boston Journal of Commerce*: "In reading over part of the paper read before the New England Cotton Manufacturers' Association, at its last meeting, by Alfred Hawkesworth, of Montreal, Canada, I felt more impressed with facing the old story of how we, in the nineteenth century, with all our boasted improved machinery, are far in the background in comparison with some of the (what at times we are pleased to name) uncivilized nations of the east in the art of weaving—as a fine art. Many of us almost feel ourselves blush when we look over some of the grand productions that have been handed down to us as examples of their handiwork, and remember that they were made without the aid of any of the up-to-date contrivances for manufacture, or the preparatory stages of it at least, of which we boast they can prepare the fibres much better than can be done by hand. When we compare



LOWELL TEXTILE SCHOOL—SPINNING ROOM.

experience as instructor and examiner of textile schools, and is also a practical manufacturer.

The advice and experience of trustees such as the above, is not only a benefit to the school in its equipment, but it is also advantageous for a young man to be educated under the supervision of men who have it in their power to practically recognize ability and progress in studies. This practical feature of the school is carried throughout. Almost all the members of the teaching staff have been practically engaged in the manufacture in which they instruct.

New England textile manufacturers are now recognizing fully the necessity of such schools in order to qualify workmen to take the positions of overseers, to enable the sons of manufacturers to learn the business in a greater variety than is possible in any one mill, and to give the young men who enter the textile business the best advantages. The trade school, and especially the textile school, is essentially an institution for giving a young man an earning capacity. A better investment cannot be made than the fees payable at such a school, for the instruction gives a capacity for earning a substantial salary in after life.

their crude rattle traps of looms, cards, etc., with those of to-day, we are reminded of what the poet said in regard to the bird's nest: 'No tool had he that wrought; no knife to cut, no nail to fix, no glue to join, no bodkin to insert; his little beak was all, and yet how nicely finished.' What nice hand, with all the implements of art, could make me such another?'

"We have not accomplished as much in the elaborate design and texture of material, as I realized a few days ago when a mill superintendent was showing a sample of fine cloth which the jobbers wanted. Comparing it with what we generally have on the market, it was a fine sample, but comparing it with what some of the Indians have done, years before we were born, it was poor. But on the other hand, we have been able to put a finer class of goods in our general market as clothing for our common working men and women, at a price within the reach of most of them, so that they can appear on our streets and in our homes, halls, churches, etc., as few of those Indians or Chinese could do, with all their boasted ingenuity and patience, coupled with perseverance, for most of these things were for souvenirs or presents to great men or women or crowned heads. Aside from this, have we made the progress

we might have done in this direction? When we desire a monument or something of that kind, we want the greatest symmetry, we want natural features in all pertaining to it, and above all, we are proud when we can have the work done by an American artist. All our great paintings, etc., are on the same principle, and for this purpose our artists see to it that the apparently little things are well looked after, that all the colors used are of the best and properly mixed, and that the proper quantity of brains, with the proper quality, are brought to bear in the mixing, shading and blending, as well as harmonizing, of colors. Who is there among us who is not sick and tired of that sad, 'just as good?' We would always rather believe that the best, as in an instructor, is none too good.

"Mr. Hawkesworth pointed out in his paper the care that should be taken in the constitution of the various kinds of cloth, and the proper treatment of yarns, to give the requisite results which will apply to all kinds and grades; but as we cannot shut our eyes to the fact that the north, at least, must go, as a rule, on to finer, as well as fancy goods, taking the place of that class of cotton cloths that is generally imported, it behooves us as a manufacturing class to thoroughly understand that the best is none too good, and coupled with this, never to forget what a late governor of Massachusetts, Gen. B. F. Butler, made so good a point, that the country suffered more from undue consumption than over-production, for what is the use of using all the best energy we have, and all our ingenuity to produce these fine, fancy fabrics, if the populace, by means of reduced wages, are not in a condition to purchase or use them? We all know this makes dull markets, and then those who have capital invested, being so anxious to sell, will offer at a lower price, and to do this cut down the wages of those who are expected to make a market for the same class of goods, causing an extra glut in the market at one end and blocking up sales at the other, by keeping the power to purchase from the people. This we have seen done again and again. But we are beginning to see the same policy pursued with the fine-goods mills that has caused so much trouble in the coarse and medium mills—reducing the quality so as to reduce the price.

"Many of us know well the great hue and cry against uneven cloth some time ago, which has never got back to where it was, as a rule. We know just as well the cause, not because the managers were incompetent, but on account of such a desire to lead, when prices dropped, and to increase the speeds and lengthen the drafts, especially at most of the preparatory processes. It is plainly evident that when we increase the draft, say, of a railway head or drawing frame, that the fibres cannot be generally elongated or parallelized as nicely as with a lower speed and lighter draft. The heavy sliver rushing through at such a high speed is drawn more at some places than at others, thus making weak, fine places as well as lumpy, thick places, which no amount of doubling and drawing will even up. In these long drafts, we find in some places that, where quite a number of the fibres are in about the same position, which often happens, they are drawn out to their full extent before an equal quantity has entered the back or middle roll. There may be all the care taken, and all the experience a man may have brought to bear on the setting of the rolls, and attending to the proper condition of the cots, oiling, cleaning, weighting, etc., but no amount of this kind of medicine will cure slivers that have been made uneven by overspeed and overdraft. But add to this the troubles at some mills where they are trying to spin fine numbers on old, played-out machinery, or on some good machines that were constructed for a coarser grade of goods, and it is like expecting a watchmaker to turn out fine, well-finished watches, using the tools of a common blacksmith. In these cases the best of up-to-date machinery, with plenty of it, in the preparatory processes, and not expect too much production from these, is none too good for the class of goods that will keep our housewives from that bane to American manufactured goods, 'Let me see some of the imported.' We are well aware that there must be the greatest economy used in the mills, even on this class of goods, and that all the leakages must be stopped up or financial ruin will ensue, but we have had this same kind of thing demonstrated over and over again among English manufacturers that it ought to be a general common-sense view of all manufacturers that the 'penny-wise-and-pound-foolish' system of trying to make fine goods with old, dilapidated, or machinery

not adapted for the class of goods run, making waste and poor goods, changing of bosses as well as general help, always comes out at the thin end of the horn. But more than this, it hurts the general trade of those who are trying their best to equip their mills with the best up-to-date machines and systems of working and good help, for once, a poor piece of home-manufactured goods is shown on the counter, and it does not come up to what the buyer requires, it creates a prejudice against our own and in favor of the imported article.

"I am of the opinion that Mr. Hawkesworth has noticed for some time that the advice he gave in his paper was very much needed, judging from what he has for some years seen on the market. What he has laid down is certainly what we all learned in connection with the construction of cloths and the preparation of yarns for the same, but when we see these good old maxims have been unheeded, we will not dare to say for what reason. I think it a good move that some one in the position of Mr. Hawkesworth should, in the nice way he took to do it, give our manufacturers a hint strong enough to set some of them to thinking, more especially on our advent of a more far-reaching stride into the manufacture of finer fancy cotton goods.

"OBLIVION."

### THE COTTON CROP.

The cotton season, 1896-97, has been a very disappointing one in the United States. The sanguine expectations from time to time entertained have not been fulfilled, and the year closing August 31st has been far from satisfactory. For this the election excitement was largely responsible. The *Commercial and Financial Chronicle's* figures show that the total crop this year reaches 8,714,011 bales, while the exports are 5,968,422 bales, and the spinners' takings are 2,887,047 bales, leaving a stock on hand at the close of the year of 77,015 bales.

Of the various departments of cotton manufacture, print cloths have probably during the season been least favorably situated. Even the efforts made in the closing months of the previous year to put the market in better shape by reducing stocks of goods through a reduction of the output signally failed, and similar efforts this year have accomplished comparatively little. The export movement from United States this year has shown a further and decided expansion. While the shipments to South America, Mexico, Continental Europe, and the Central American States have been less than in 1895-96, there have been very important gains in the exports to China, Japan, Africa, Great Britain, British America, and the East Indies, the movement to China having more than doubled after an increase of over 100 per cent. the preceding season, and the shipments to other countries in Asia and Oceania have risen from \$606,475 to \$1,971,999. Thus were 34,845 packages, containing 24,572,600 yards, shipped to China via Vancouver, B.C.

We cannot speak positively of the new crop yet, because of the backwardness of the plant. Compared with 1896 the growing crop is a late one, and consequently more dependent upon future developments and conditions than an early crop. Then, again, the acreage report showed that the start in the spring as a rule was backward and otherwise not favorable, though Texas was an exception. Hitherto, these early defects have not disclosed weaknesses, the conditions of growth in June, July, and over a large section in August, having been less trying than usual, so that the plant has nowhere met with any real disaster. At the same time, the late feature is just as it was in the spring, having in no degree been made good. In Texas the dry weather which prevailed over a large part of the State from early in July until after the middle of August caused apprehensions of serious injury, but since rains have fallen the outlook is improved. The general backwardness of the plant is clearly indicated both by the date of the receipt of the first bale in the various sections and in the total receipts up to September 1. In Texas, to be sure, the first bale was reported at Houston on June 30, the earliest date, with one exception, recorded, elsewhere first arrivals have been from a few days to nearly a month later than in 1896. The aggregate receipts of

new cotton to September 1 have also been much below 1896, but that year they were phenomenally large. Compared with other years the total in 1897-97 is a full one, a fact due to the drouth in Texas. The movement in most of the States is very backward. At all points, except at Galveston and New Orleans, the arrivals of new cotton have been small.

### COMPRESSED AIR.

At pages 343-346 vol 2, and page 317, vol 1, of THE CANADIAN ENGINEER, descriptions are given of the Taylor Hydraulic Air Compressor, now at work at Magog, Que., in operating six engines, showing the printing machinery of the Dominion Cotton Mills Company using 155 h p. giving a pressure of 52 lbs to the square inch. Though very little has yet been done to call attention to the merits of C. H. Taylor's invention, yet its simplicity and the efficiency obtainable from a given fall of water are so great that manufacturers, miners, capitalists, scientists, and every one who may by accident have heard of it, are writing for any available information from all parts of America, Great Britain, and many European countries.



In the meantime, the company has been securing and perfecting its patents in all important countries and already has sold the rights for British Columbia, Washington, Montana and Idaho, for a large sum, and a company has been formed with head office at Spokane, Wash., to instal the system in those parts. This company is becoming active, and arrangements are about completed to instal a plant at Answorth, B.C., to develop 500 horse-power for use in the mines within a radius of five miles.

The plant at Magog has now been tested in all seasons and the system has proved itself faultless, giving the company using it great satisfaction, both in its working and in its economy. No one can see where there is any probability of the plant wearing out or repairs being required during an ordinary life time, unless it be to increase the size of the plant to give more power.

All will accord to steam, electrical and water power their full value, allowing to each a field where they are supreme. All these are now well developed and their usefulness generally understood, yet compressed air, with its possibilities, is as yet a sealed book even to most scientists, though all are accustomed to the usual expression, Compressed air is the coming power. It has come, and the world is

indebted to Mr. Taylor for his ingenious invention, which transforms a water-power into compressed air at a minimum cost and maximum efficiency. Some of the advantages claimed for the system are as follows:—

1. It transforms a water power of any head into compressed air of any desired pressure without the usual intermediate losses.

2. Low heads of water, which would otherwise be useless for the production of power, can be used to advantage by this compressor.

3. The air is compressed at a constant temperature, viz. that of the water, and is consequently delivered at a temperature generally below that at which it is taken into the compressor. Hence there is no loss of power by contraction in volume.

4. The air during compression is freed by the water of the greater part of its moisture, it being delivered so dry that it is impossible for condensation to take place during either its transmission or subsequent expansion.

Condensation and freezing of moisture in mains, etc., one of the chief obstacles to the use of compressed air, is entirely overcome by this method of hydraulic compression.

5. This compressor will maintain a constant pressure, even under a fluctuating head, without change of efficiency.

6. The compressor is entirely automatic in its action.

7. Owing to the absence of moving machinery the duration of a plant is almost without limit.

8. The absence of moving machinery dispenses with skilled labor, as practically no attendance is required.

9. When the compressed air is not used at the same rate as it is generated, it accumulates and may afterwards give, for a limited time, as much as double the average power developed by the compressor, without change of pressure. This storage of power is effected by displacement of water, and not by an increase of pressure.

10. A plant does not require to be covered by a building.

With the question solved as to the compressing of air economically, as it is by the Taylor system, it is only reasonable to expect that progress in rapid strides will now be made by engineers and others to perfect the motor or other apparatus which uses the air, as hitherto all attention was given to the compressor and none to the motor, whilst in the use of steam all attention was given to the perfecting of the engine and not the boiler. The general public can find but little inform

ation on compressed air, the most accessible being such as is found in catalogues, in words such as "if you don't buy our compressor you can't use compressed air," in effect condemning unintentionally compressed air. Thus, also, has advancement in its use been retarded.

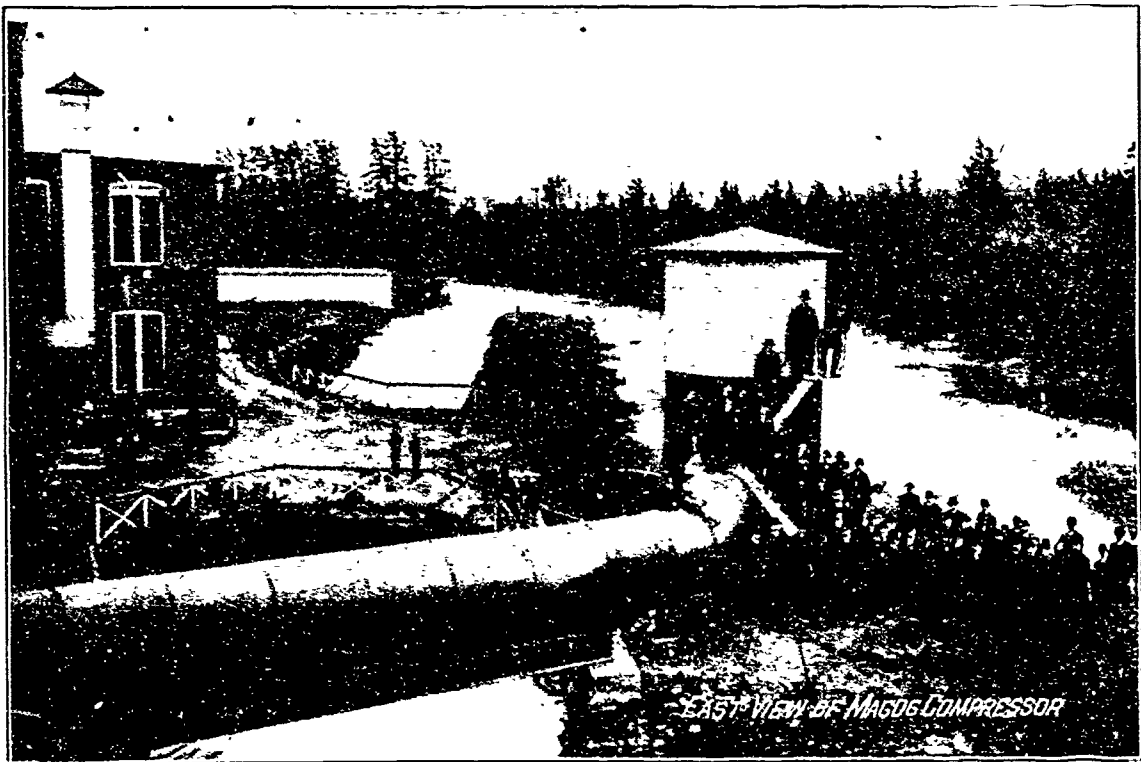
Again, how little knowledge is abroad regarding the transmission of air power, or, going further, how few engineers or scientists know anything of importance regarding its transmittable qualities? As it can only be transmitted through pipes, there is of course some decrease of pressure from friction, and hence some loss of power at the delivery end, but far from as much as most imagine. Catalogues have done injury here to the cause of compressed air, though unwittingly, by printing tables showing the loss of pressure due to the friction of air in pipes, the intention being to show the size of the most suitable pipe for given cases of transmission. And while telling about loss of pressure, they fail to tell that that loss does not necessarily mean to the same extent a loss of power. Take a distance of, say, 10 miles, and the fact is said to be that there is but very slight loss of power if the pipes be of proper size. If gauge pressure be, say, 80 lbs., or 95 absolute, on entering the pipe, and 70 lbs., or 85 absolute, at the other end, there would be a loss of a little above 10 per cent. in absolute

Assignee Langley has declared a first and final dividend of 50 per cent. on the dollar in the estate of J. B. Williamson, dry goods, Guelph, Ont., who assigned some time ago. The insolvent has also made an offer of 7½c on the dollar extra for a discharge.

The wholesale houses in Toronto did a very large business during the Industrial Exhibition. W. R. Brock goes so far as to say that in this respect the two weeks excel any similar period in the whole of his 27 years of business in Toronto. Caldecott, Burton & Spence said to a *Globe* reporter that it was their liveliest experience in fifteen years.

E. D. Gough, clothier, Queen street west, Toronto, has assigned to E. J. Henderson, of Toronto. The estate appears to be in a somewhat complicated condition on account of the claims of trade creditors and of Mrs. Gough. The assets are expected to be in the neighborhood of \$20,000 to \$25,000, and the liabilities about \$30,000. There are a number of Quebec houses interested, the principal one being E. A. Small & Co. Mr. Gough was arrested a few days before the failure on a charge of perjury, preferred by E. Boisseau.

The death of the late Geo. R. Renfrew took place recently in England. He was born in Quebec in 1830. At the age of fifteen he came to Montreal and entered the employ of his uncle, John Henderson, and



pressure; but there would be an increase of volume of 11 per cent. to make up for the loss of pressure, thus the loss of available power would be less than 3 per cent. With higher pressure, still more favorable results could be shown. Such a power produced as economically as by the Taylor system, must surely be a "coming power."

#### FABRIC ITEMS.

Moore & Kerr, dry goods merchants of Orillia, have assigned liabilities \$12,000, assets \$14,000.

Conn Bros., Ashton, Ont., have sent their cutter, James Fry, to Manitoba to take orders for clothes to be made at Ashton.

N. Faulkner & Co., dealers in men's furnishings, Notre Dame street, Montreal, have made a voluntary assignment to Alexander Desmarreau.

A demand of assignment has been made by Shepherd Beaumont upon H. B. Muir & Co., commission merchants, of No. 1 St. Helen street, Montreal. The demand is founded upon a draft at six months made by Birth & Co., of Bradford, England, for £425.

about five years later returned to take charge of the Quebec branch of the business, which he carried on under the style of Henderson & Renfrew, then as Renfrew & Marow, and for over a quarter of a century as Geo. R. Renfrew & Co., a house known all over the American continent as the emporium for furs. He was a director of the Quebec Bank, the Quebec Fire Assurance and the Quebec gas companies, and vice-president of the Quebec Street Railway, a trustee of the Methodist Church, and a member of the Protestant Board of School Commissioners. He leaves a widow and six children, three married daughters and three sons, one of whom is the manager of the Toronto branch of the firm. The late Mr. Renfrew was much respected both as a business man of the greatest ability and the highest integrity, and as a private citizen of exemplary life and sterling worth. Mrs. Renfrew was on the point of leaving to join her husband in England when the news of his death arrived.

Mowat & Co., dry goods, Napanee, Ont., are financially embarrassed, and are preparing a statement for their creditors. It is understood that the liabilities amount to between \$40,000 and \$50,000. The principal creditors are Stewart & McDonald, of Glasgow.

## Foreign Textile Centres

MANCHESTER.—The condition of the home trade, although improved is not yet giving complete satisfaction. In this district much distress exists on account of the engineering lock-out, which affects many thousands of workers usually in the receipt of good wages. Employment in the cotton industry is also slack. In the Preston district the holidays, which ceased on a recent Thursday, came as a welcome relief and some mills, comprising about 10,000 looms, remained closed for the whole of the week. The velveteen trade in the Oldham district is so depressed that firms controlling 10,000 looms have closed their mill for a fortnight. East Lancashire, where lower prices are said to be paid, is competing seriously with Oldham in this branch of the cotton trade; but, apart from this, the business suffers from the slackness in the home demand, and the dropping off in shipments to New York, which is very well supplied with velvets as a consequence of the heavy shipments made from March to June. Forty to fifty packages have represented the consignments to New York during recent weeks, and until there is an increase in these, totals shippers will not be able to place much business in the velvet districts. An idea of the estimation in which mill property is held in Lancashire may be gathered from the details of the sale of 14 shares in the Preston Cotton Spinning and Manufacturing Co. recently. The company for some time paid 12 per cent., and at the last meeting a dividend of 10 per cent. was declared. Only 58s., however, was obtained for £3 paid shares. A share list of 92 Oldham mills shows only 15 at a premium, the remainder being at a discount. As far as producers are concerned, the state of the cotton trade is unsatisfactory. It is impossible to obtain remunerative prices for most classes of goods, and many looms have stopped rather than run at a loss. In the spinning and weaving branches a considerable curtailment of production is taking place. Most of the spinning mills in Lancashire close for a week at this period of the year. There is considerable fear of a strike in the Burnley weaving district. The cause is the fact that some manufacturers insist upon paying less than the list prices to the weavers. The strike may spread further unless better counsels prevail. As the Burnley branch of the trade is in such a depressed state, the probabilities of an amicable settlement of the difficulties are slight. While there is so much grumbling on the part of manufacturers, there is no doubt that generally the trade of Manchester—referring, of course to the distributing branches—is in a fairly satisfactory state. The home trade is without doubt in a condition above the average. The new Spring styles are being made as quickly as possible. Most of the new patterns in such fabrics as fine cotton dress goods are now being shown, and among them there are some choice novelties in fancy lace stripes and similar goods. These goods are, of course, always extensively worn in whites, dyes and printed styles. Piques are in for a good run during the Spring and Summer of 1898. They have been much in favor for some time, but the makes have been improved in appearance and wearing qualities without any increase in cost of production. Some choice fabrics of this class have spots or detached figures formed from extra figuring weft of thick yarn if for bleaching, or of colored yarn if for finishing. The spots are a good distance apart and give the fabric a decidedly smart appearance. Among other fancy cottons a rather novel style is one in which small tufts are formed upon a fine satin ground after the manner of Terry pile. In dyed cottons the shades most in favor are blues and neutral tints. There are some very fine new shades of gray and slate, as well as some new and effective browns. The colors in such goods are the ones which will also be mostly seen in Bradford dress goods and in silks during next season. Black corded goods are being largely produced for Spring. Very fine new cord weaves are to be seen, and the style is undoubtedly effective, and can be produced at a reasonable cost. These goods are mostly finished in the Bradford district, as it is stated that there is no firm in the Manchester district which can produce the required finish. Velvets are rather quiet at present, although there is plenty doing in the lighter makes for export. The leading velveteen dyers are mostly working short time. This trade generally improves about this period of the year, as Spring colors are fairly well known and orders are

being received for Spring goods. A larger quantity of fast piles and fine twill backs is being made, but the ordinary weights for Spring goods are about the same as before. Prints rule quiet although good orders are being placed for next season's goods. There are many novelties to be noticed, but most of the leading printers expect a run on the class of goods which was much in vogue during the past season. Embossed moire brocaded cottons are also being extensively made for Spring, and many new designs in such will be seen. Trade on this class of goods has been very satisfactory during this year and much money has been made.

LEEDS.—The woolen cloth trade is unchanged. Buyers from London and the provinces are rather numerous; but high-class fabrics are firmly held. Manufacturers ask more money for worsteds, serges, chevots, and tweeds of the higher grades, which checks demand. Coatings, suitings and costumes are slow. Fancy flannels for sporting suitings are a large turnover at former prices, and good orders are placed for blankets for early delivery. Those firms in the Leeds engineering trade which had workmen in their employment just before the commencement of the holidays resumed operations under practically the same conditions. So far as the members of the Amalgamated Society of Engineers are concerned, there is no record of any having gone back to work.

BRADFORD.—In the course of the local wool trade the improved tone which was recently apparent has now crystalized into increased trade and higher prices. The condition of the fine merino wool department of the market is so peculiar as to be without parallel for many years, and it is of importance to the drapery trade that the real conditions of the situation should be thoroughly appreciated, in order that preparation may be made for the improvements in the market which are nearly certain to occur in the early future. The principal feature is that hundreds of thousands of pounds worth of wool, principally of the fine merino class, have been taken off this market on American account in the course of a few months, amounting in the aggregate to a total which exceeds the ordinary requirements of the country for at least two years. This wool has gone not only out of the hands of merchants and brokers, but has largely been taken from the works of the wool-combers, when it would, in the ordinary way of business, have shortly been combed into tops, and so on into worsted yarn. This dearth had no effect on the price of raw material on account of the reaction following the American rush, and the depression in textiles both in this country and on the continent of Europe. But suddenly we are face to face with the promise of a time of prosperous trading in America, resulting from the disposal of a splendid harvest at high prices, and the increased confidence resulting from the settlement of the tariff question, and the consequent attraction of European capital towards American investments. Consumers both here and on the continent have therefore suddenly regained the confidence which was wanting to take advantage of the low prices recently ruling, and the market being in a very sensitive state, on account of the small stocks, even the moderate buying which has already taken place has made fine tops perceptibly dearer, and further larger transactions will force prices up rapidly, especially as the production of this class of wool in Australia is estimated this year at 15 per cent. less than usual. Crossbred wools are sure to be affected to some extent in sympathy with the finer wools, but the drain on the coarser kinds has not been nearly so great. The sources of supply of wools of this class are more numerous, and fabrics made from these wools are somewhat less fashionable. English wools are decidedly in better demand and firmer, the classes most inquired for being pure lustre and Irish wools, some of the latter having been taken recently on German account, probably for the production of colored worsted yarns for fancy goods in shot effects, in which the Germans appear to be following the Bradford lead of last season. Mohair is quite steady, with an upward tendency, both here and at the sources of supply, and recent considerable transactions in alpaca show prices to be very firm. Mohair spinners find a good demand for present consumption, not only of twofold fancy yarns on home account, but also in single weft yarns for the production of linings and summer coatings for the continent. There is also a distinct improvement in the tone of the worsted yarn trade, and some buying has been done in twofold on export account at slightly better rates. In the home trade also there is more inquiry both for dress goods, yarns, and worsted

coating sorts. The improvement noted above has not, however, yet reached dress goods, where the absence of the American trade and the uneasiness created by the engineers' strike in the home trade, coupled with the uncertainty as to the wants of the continental trade, have combined to produce an unusually quiet August trade. There are, however, even here, distinct signs of improvement, and some of the producers of high-class fancy dress goods tell me that they are having their new style for the coming spring well taken up, but that it is necessary to produce two distinctive classes of goods for this season, one for costumes for outdoor wear of the tailor-made order, and the other of a more dressy description for house wear and quiet outdoor functions in the height of summer. For the present there is a good demand for crepon, mohair, broches, and some extremely handsome fabrics of this order are now being produced.

**ROCHDALE.**—The flannel market has been moderately attended recently, and trade was quiet, but drapers and merchants are now turning their attention to autumn and winter wear, but at present the demand is not as large as usual at this period of the year. Some of the merchants are delaying the delivery of their goods later than previous years, which is inconvenient to the manufacturers. Prices are firm.

**KIDDERMINSTER.**—The output of carpet is probably not more than it has been recently, but there is a far more cheerful and confident feeling. The various makes of carpet produced in this market have proved successful throughout the season, and inquiries from wholesale and retail buyers are more numerous and larger than usual. The yarn market is about as dull as it can be. A few small sales have been forced at prices well below the cost of production, but, generally speaking, prices are pretty firm, although at a miserable level from the spinners' point of view.

**NOTTINGHAM.**—Trade is dull, and though a few firms have fairly good orders on hand, they are conspicuous exceptions to the general rule. Much machinery is idle, and in most instances production has to be carried on with caution in order to avoid the accumulation of stock. There are no striking novelties offered, the condition of the trade not being such as to encourage manufacturers to bring out new goods. Fair business is going on in some descriptions of Valenciennes laces, and there is still a steady sale for the Oriental; these have, however, by no means a monopoly of the Nottingham trade. Common cotton laces are slow and prices are unremunerative. Inquiries for silk laces have not increased and makers of these goods are doing badly. Orders for embroidery edgings and trimmings are few in number and limited in extent. Lace curtains are not in a satisfactory condition and local manufacturers complain of being heavily handicapped by the higher rate of wages prevailing here as compared with that paid in other districts where non-unionist labor is employed. The plain net branch continues healthy, there being a sustained run upon bobbin and mosquito nets, prices of which are very firm. In the making-up branches certain specialties are selling, but the general demand is quiet. A Nottingham lacemaking firm decided recently to close its local factory and to remove the machinery up to Scotland, where much cheaper labor can be obtained. Another has decided upon the same course and half a dozen others are considering the advisability of the step. The union rate of wages is almost prohibitive in the curtain and other branches of the lace trade of the town if manufacturers are to compete with foreign producers, and unless the men become reasonable there will soon be a wholesale migration that will not strengthen the position of the English lace trade. The winter run on lace for dresses has not yet set in, but reports from the distributing centres say that a good season is expected. Canadian buyers have bought considerable quantities of Valenciennes for millinery purposes, together with veilings and chenille curtains. Irish lace is enjoying a considerable vogue at the moment. Many of the smartest afternoon gowns at the French watering places, as well as at Homburg and at Marienbad, are arranged with complete coat bodices of Irish lace.

**LEICESTER.**—The yarn market is in a slightly more hopeful condition, and there are signs that the worst of the depression is over, but production is kept very strictly within moderate limits. Lambswool and the best natural cashmere yarns are in fair request, but fancy yarns are quiet. The hosiery industry improves very slowly, and there is an

entire absence of any pressure for delivery. Inquiries for choice underwear fabrics, both for home and export, are more numerous, and more orders are being booked in spite of the remarkably severe competition. Special elastic web goods sell freely for home and colonial markets.

**SOUTH OF SCOTLAND.**—Nearly all the big houses at Glasgow are still busy with clearing sales. As far as I have heard, the turnover has been above the average. The wet weather which has prevailed of late has been against summer goods. It is hoped now that the cold weather will set in quickly, and cause a boom in woollen goods. The reports from the South of Scotland tweed districts are still of an unsatisfactory character. Orders are not by any means plentiful, and consequently some mills are not busy. Some makers have booked a few good confirmation orders. The demand for cheviot and worsted cloths is still fairly good. Very few transactions in wool are reported, even although prices are expected to go up. The linen industry at Kirkcaldy is in a fairly satisfactory condition. Spinners have obtained a small advance on tow yarns, but the American prospects are still very uncertain. The floorcloth and linoleum factories are still fully employed. In some cases overtime has had to be worked. The Dunfermline manufacturers are hopeful that there will be a decided improvement in the demand from America at an early date. The settlement of the tariff question has given confidence to merchants and manufacturers alike, and trade prospects are better all round.

**BELFAST.**—Our market since we last wrote has recovered sharply, and during the past fortnight a large business has been done at hardening rates. At the moment, owing to recent heavy purchases, there is a sort of lull in demand, but the market, as a whole is in a condition of great firmness, and prospects for the immediate future are very cheerful. Yarns are sold in considerable quantity and stocks in first hands have, to all intents and purposes, been cleared out. The range of weft lines is still nominally 2s. 10½d., but this is rock-bottom price and 3s. should soon be the rate. Brown power and hand loom linens in the various widths and weights have been bought in quietly increasing quantity, and turnover is well above the average of recent weeks. Tow goods have sold freely and the demand is speedily expanding. Unions are very firm in price with improving demand. Handkerchiefs are quiet, but here and there more inquiries are current. Damasks are on the mend and orders of fair size are placed. Hand-loom linens are in regular demand, and prices are very firm and stocks decreasing. Finished goods for home consumption appear to be improving, though no actual change in this direction can yet be reported. Export trade is keeping up well for this season of the year.

**LYONS.**—Although we have by no means passed the dull season, more life is noticeable in our market. The number of buyers from Paris and foreign parts is increasing, and they seem to have been attracted by the movement which is taking place in the raw silk market. No large orders have been placed yet, the main object of most buyers apparently being to inform themselves regarding the effect which the advance in raw silk had on manufactured goods. At the same time a perceptible improvement has taken place, and the demand for several lines is increasing. Plain or glace taffetas, failles for skirts, plaid taffetas, satin duchesse and wool-mixed bengalines keep a great number of looms busy. A very satisfactory demand is also experienced for black satins and satin soleil. Damas have been reordered in glace, colored and black, as well as other fancy articles and moires. The light-weight articles continue in excellent demand and seem to be destined to play quite as important a role during the coming Spring as they did during the past. Generally speaking, however, the all silk articles are not in as good a demand as the cotton mixed, piece dyed goods which furnish by far the greatest part of the work for our power loom factories. But still a great number of looms are taken up for mousseline, fancy gauze, crepe lisse and similar articles. The production of these is now making satisfactory progress since the wages have been increased. Velvets have very much improved and are being bought now in schappe and also in all silk qualities. Plaid velvets are scarce and their production seems to be insufficient. There is a good demand for silk and velvet ribbons, plain and fancy.

**CREPELD.**—At the present moment, when we are between seasons, not much activity can be expected, but still the silk mills are well employed, and few weavers are found out of work. Besides, the con-



conditioning establishment, which at all times reliably reflects the volume of business, indicates a steady progress of work. The looms are principally busy on damas in black, colored and glace, colored failles, moires and colored merveilleux. *Moire faconne* however, did not justify expectations. New orders are still scarce, but the home market, as well as England, made a beginning with necktie silks. In the wholesale houses there is more life than might be expected for the time of the season, and although the orders are not large, they are of sufficient importance to keep the houses busy. For the coming season a good business is expected, particularly for velvets. Plaid and fancy velvets are already in good demand.

ZURICH.—The raw silk market is inactive, and the continued decline in silver does not encourage buying. Manufacturers are waiting for orders for next spring, and do not feel in a speculative mood in regard to the purchase of raw material, notwithstanding the fact that the local industry is not very well provided for their future requirements. The decline in silver has been accompanied by a fall in the exchange on Shanghai, which has encouraged buying in that market and brought about an advance in local quotations. The exchange rates on Yokohama have not been affected, and quotations of Japan silk are about one franc higher. Italian silk is quiet. The figures registered at the four following silk-conditioning works in July show an increase compared with July, 1896, of 52,810 kilos in Milan, and of 4,054 kilos in Basle, and a decrease of 3,580 kilos in Zurich and 18,951 kilos in Lyons.

### EAST INDIAN CARPETS.

The commoner kinds of carpets produced in India are daris (rugs) and satrangis (carpets), says the Indian correspondent of the *Dry Goods Economist*. They are of cotton, and in pattern are customarily striped red and blue, or blue and white, or chocolate and blue. Frequently squares and diamonds are introduced, with sometimes gold and silver producing wild, picturesque designs. The manufacture of these cotton goods is widespread. The chief centres of production, however, are Agra and Allgarh, in the Northwest Provinces, whence they are exported in large quantities to all parts of India.

In many of the jails up and down the country both cotton and woolen carpets are manufactured. Here it may be added that much care is often bestowed upon the manufacture of the small carpets, called *jai namaz*, on which the Mohammedans kneel when saying their prayers. At Mirzapore imitation pile carpets in colored and uncolored cotton are produced. The original home of the woolen pile carpet industry was in the wilds to the north of Persia. It was introduced into India by the Mohammedans, who, to whatever place they went, not only encouraged the indigenous arts, but brought with them the handicrafts, and even the craftsmen themselves, of Bagdad, Shiraz, and Samarkand.

At the present day the manufacture is very extensive, and is carried on by private enterprise and in the Government prisons. The foundation for the carpet is a warp of the requisite number of strong cotton or hempen threads, according to the breadth of the carpet, and the peculiar process consists in dexterously twisting short lengths of colored wool into each of the threads of the warp so that the two ends of the twist of colored wool stick out in front. When the whole line of the warp is completed the projecting ends of the wool are clipped to a uniform level, and a single thread of wool is run across the breadth of the carpet between the threads of the warp, just as in ordinary weaving, then another thread of warp fixed with twists of wool in the same manner, and again a single thread of wool is run between the threads of the warp across the carpet, serving also to keep the tags of wool upright, and so on to the end. The lines of work are further compacted together by striking them with a blunt fork, and sometimes the carpet is still further strengthened by stitching the tags of wool to the warp. Then the surface is clipped all over again, and the carpet is complete. The workmen put in the proper colors either of their own knowledge or from a pattern, and it may be said that they work best without the pattern.

Carpets of this kind were brought prominently into notice in 1857, and being novel and beautiful an extensive trade soon sprang up in them. As usually happens in a contingency of this kind, Indian carpets soon began to deteriorate, and there has been a considerable

falling off in their quality and art character. But the desire of English and other importers to obtain them cheaply and quickly has not been the sole cause of the deterioration, for on the whole perhaps the competition of Indian jails has worked more injury. Though the poor work of the prisons explains the falling away in quality, the ultimate explanation is to be found probably in the lack of knowledge and real appreciation on the part of Western purchasers.

On this point Sir George Birdwood has some very plain words to say at the expense of his countrymen, "Few people seem able to realize," he says, "when buying Oriental carpets they are in fact choosing works of art and not manufacturers' piece goods produced at competition prices. Formerly the native artist strove to his utmost to produce a pleasing design, knowing that the payment he would receive for his work would depend upon the beauty of its design and the super-excellence of its fabrication. But now his first thought is to reduce work to the tariff of *c'arges* ruling in the European markets and to deliver it punctually within the time fixed by the export firms of Calcutta, Madras and Bombay. The result is seen in the comparison of carpets of only 20 or 30 years ago with those now made in those countries, to say nothing of those manufactured in the Government jails of India. The attempt to set a trade value of 'so much per square yard' upon those art treasures is not more absurd or less ruinous to their production than it would be to apply the same principle to the purchase of pictures."

The writer of these words is no doubt right in all he has to say about the degeneration of Indian carpets, and it is much to be regretted that he should have to say it. But though the Indian carpets turned out to-day are inferior to those upon which patient weavers spent years of industry, it is nevertheless true that the change is one that has proved of advantage to the majority of Europeans and Americans, for the reason that it has given popularity to a commodity that is still excellent of its kind, even though not equal to the historic articles that are only within the reach of the millionaires.

Modern Srinagar carpets are good as to the wool, and not bad as to the texture; but a legitimate cause of complaint against them is that the patterns are largely copied from the shawl patterns introduced by the French houses into Cashmere 40 years since. They are scarcely well adapted for floor covering, because they are too glaring; but for portieres and tapestries they are very admirably suited, by reason of their lively coloring. Sindh carpets are the cheapest, coarsest, and least durable of all Indian goods of this kind.

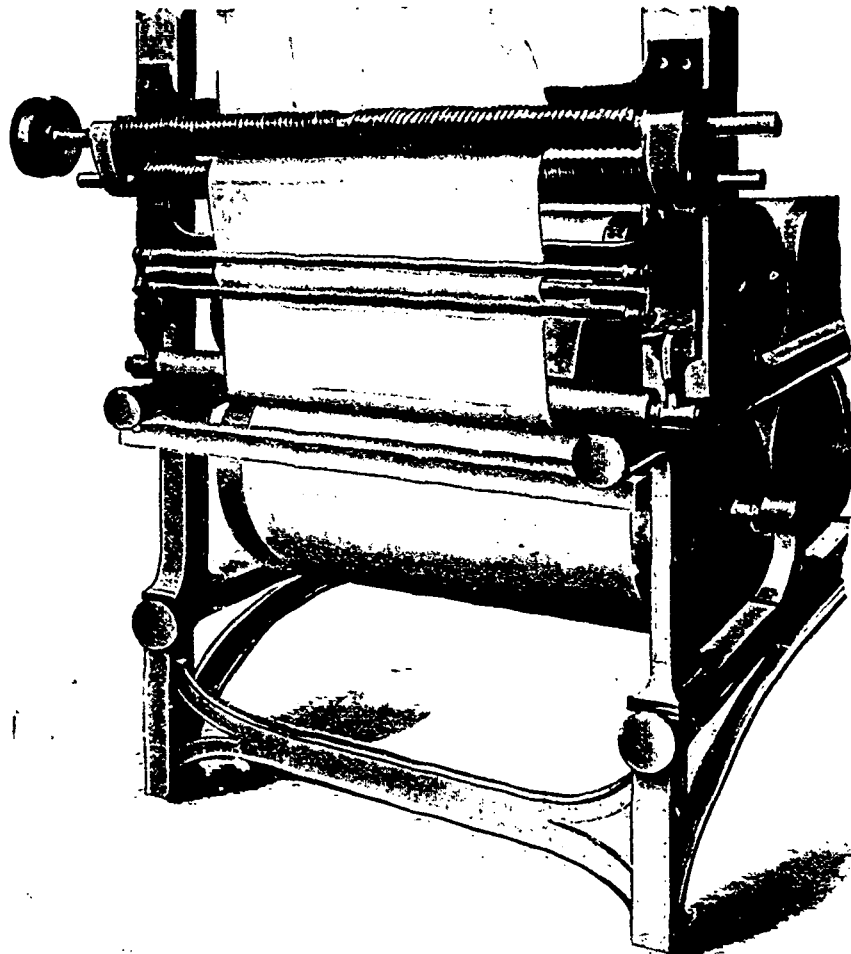
The cheaper classes of rugs are made with a pile of cowhair woven upon a common foundation with a rough hempen shoot. Beluchistan carpets, on the other hand, which are much in demand in India and out of it, are made of goats' hair, which gives them a singularly beautiful lustre—finer even than Indian silk carpets. The patterns are usually of the fantastic geometric character found in Turcoman rugs. They are laid on either with a deep indigo or deep madder-red ground and are traced out in orange, brown and ivory white, intermixed with red when the ground is blue, and with blue when the ground is red. The ends terminate in a web-like prolongation of the warp and woof beyond the pile and when striped in colors or worked in small diaper form a very picturesque fringe.

Jubbulpore carpets have deteriorated in quality and art, in what must be regarded as a most extraordinary manner. Strange to say the decline dates from the establishment of a school of industry in that centre. The chief complaint against these goods is, that the foundation is sufficient to carry the heavy pile which is a feature of this make, and that the staple is so short as to be incapable of bearing the tension even of the process of manufacture. Of Mirzapore carpets, it need only be said that the materials are not so carefully chosen as they used to be, that the texture is coarser, and that the colors are relatively crude. This remark applies also to the productions of Hyderabad and Masulipatam. The latter were once reckoned among the finest produced in India, but began to deteriorate as soon as the English importers insisted on supplying the weavers with the materials. The old carpets of Hyderabad contained something like 12,000 stitches to the square foot, and were comparatively costly—about \$50 per square yard. It is not surprising, therefore, that in the competition with the "thug carpets" of the jails the production of such fabrics has died out.

The carpets of Malabar are the only pile woolen goods made in India of pure Hindu design, and free from all European influences. They are made of a coarse kind of wool peculiar to the locality, and are distinguished by their large, grandly colored pattern. These are not, however, the only fine carpets still made in India. Those known as Coconadas, from the place of shipment on the Coromandel coast of Madras, prove that carpets of uncontaminated design and integrity of quality are still made by the caste weavers of India. These Coconadas are equal to anything ever produced in the Deccan. But even they are only to be had in out-of-the-way places far removed from the railways and from English stations.

#### SHOWING SCROLL OPENER PLACED IN FRONT OF DRYING MACHINES.

This scroll opener is guaranteed by the makers to give absolute satisfaction in opening out crimps, creases and curled edges in front of drying machines, mangles, etc. Machines are supplied for the automatic and central opening, and guiding of any fabrics. Apparatus is



also made for opening and guiding where special arrangements are required. As shown in the illustration, this scroll opener is specially adapted to being placed in front of drying machines. The maker is W. H. Harrap, Richmond Hill, Blackfriars street, Manchester, Eng

#### SOME DYESTUFFS.

##### LACTIC ACID.

Lactic Acid has the advantage over tartar and oxalic acid, that in presence of sulphuric acid it is a much stronger reducing agent. A lactic acid mordant bath exhausts better than a bath with tartar and oxalic acid, and thus a considerable saving in chrome is effected. Shades dyed on this mordant are fuller and somewhat faster to milling. Shades dyed on 2.65 per cent. Lactic Acid, 1.35 per cent. Bichrome, 1 per cent. Conc. Sulphuric Acid, are decidedly fuller than shades dyed on the following mordants:

(1) 3 per cent. Bichrome, 2½ per cent. Tartar, or (2) 3 per cent. Bichrome, 2 per cent. Oxalic, or (3) 3 per cent. Fluor. Chrome, 1 per cent. Oxalic Acid.

Blue dyestuffs, besides showing greater intensity on a Lactic mordant, are slightly redder in tone, which is, however, not an objection. With lactic acid the addition of sulphuric acid is absolutely essential. The Farbenfabriken of Elberfeld, Germany, have recently put upon the market a technical brand of lactic acid of great purity, free from iron and glutinous matter, which is, as every dyer knows, of vital importance in the production of clear, pure shades. Samples, comparative tests, circulars, and any recent information on lactic acid and its application will be forwarded gratis by the Dominion Dyewood and Chemical Company, Toronto, sole agents in Canada for Farbenfabriken vorm. Friedr. Bayer & Co., Elberfeld, Germany.

##### ALIZARINE CYANINE GREEN.

Alizarine Cyanine Green paste, brought out several months ago by the Farbenfabriken, has proved such a successful and necessary color in the dye house, that the firm has produced an improved brand,

Alizarine Cyanine Green G. Extra, an Alizarine dyestuff of excellent qualities. This firm now places upon the market a third brand, namely, Alizarine Cyanine Green E. paste, (patented). This color resembles the G. extra mark, except its better covering property and cheaper price. The method of application, the great fastness to light, and relative good fastness to milling, are the same in both cases. Alizarine Cyanine Green E. is essentially adapted for the production of dark bottle green and dark blue green shades on loose wool, yarn stubbing, and piece goods in combination with the alizarine cyanine or alizarine blues. It may also be combined with Cœruleine and Alizarine Blue Black B. as bases, thus forming a cheaper color to dye Alizarine Cyanine Green E., on account of its good covering power and lower price, will without doubt meet with marked and widespread appreciation. For new shade card No. 605, 1897, and samples, apply to the Dominion Dyewood and Chemical Co., Toronto.

## PHENOL BLACK SS

Phenol Black SS is a new acid dyestuff, very fast to light, and cheap in price. This color is very suitable for dyeing a deep black in combination with acid green, yellow or orange, and also for producing the well known Aachen brilliant blue, a dark navy blue, in combination with an acid violet or other blue coloring matter. Cotton threads are in the dye bath stained, but on continued boiling become clear. Dye with 1 per cent acetic acid and 10 per cent Glauber's salt, enter goods at 120° F., and bring gradually to a boil. In order to completely exhaust, add at intervals 1 to 3 per cent. sulphuric acid.

## PLUTO BLACK B., R. AND G.

These three new brands of cotton blacks, Pluto Black B., R. and G., brought out a month ago by Farbenfabriken, were introduced by the distribution of small dyed skeins. A pattern card has now been prepared with great care, which shows the comparative value and proper mode of application. These colors are of especial use for suitings, on account of their excellent fastness to light. In this respect they surpass the well known direct blacks.

## WILSON AND INGHAM, CARD MANUFACTURERS.

To celebrate the opening of the extensive new card clothing manufactory of Wilson & Ingham, at Mirfield, Yorkshire, Eng., a dinner was given at the Black Bull Hotel in that town recently. After the usual loyal toasts, W. Middleton proposed "Success to the firm of Wilson & Ingham." In the course of his speech he referred to the fire which destroyed the works at Liversedge, while the principal was crossing the Atlantic. There was an adage which read: "If you wish for success you must deserve it," and he was of opinion that the firm had tried hard to deserve success. Formerly it used to be set down that the principal thing for success was hard work, but although there were few things worth having which could be obtained without hard work, to his mind, what they depended on more than hard work was work well directed. Every firm must have a head or principal man. The larger the business and its ramifications, the greater was the need for a guiding hand and wider knowledge. In Mr. Wilson they had a gentleman in whom there was every confidence. (Applause.) He was a gentleman who was highly esteemed and respected by all who knew him, and as a commercial man they knew he had few equals. (Cheers.) They were delighted that he was with them that day and thankful that his health was all that could be desired, and their earnest hope was that he would live long and continue to hold the present position at the head of the firm. (Cheers.) Never before in the history of the card making industry had a firm recouped itself so soon and so effectively as the firm of Wilson & Ingham had done after the fire. They were pleased to know that at the present time they occupied a position considerably ahead of any which the firm had previously held. The number of hands employed was never so large as at present, the number and class of machines in use was never so good, in fact they considered the machinery stood at in every department. He had no fear of contradiction when he said they had some of the best machinery in the world for making cards. (Applause.) The toast was drunk amidst hearty cheering. In responding, Mr. Wilson said: "I can say that I very highly appreciate your good esteem, as I feel under a debt of gratitude not only to Mr. Middleton, but to Mr. Simpson, my brother-in-law, for the valuable services they rendered at a critical moment in the history of the firm. I am delighted that when disaster came you stood faithfully by the old ship. The fire, which it was thought by many would prove to be irretrievable, has been the means of doing good to the firm. We have an infinitely superior quality of machines. The machines are competent to do more work in the same time than the machinery we had before the fire, and it is a proud position for a firm so young as ours to take up. It is sixteen years ago to-day since we commenced our little business at the top of Hightown. Then we were the smallest card makers in the trade, and out of sixty card makers to-day we are in the happy position of being amongst the six largest. That success is owing to the cordiality there

has been between masters and men of the firm of Wilson & Ingham. My desire is to consider the men as brothers. It is the proper and just way to treat each other, because you can only get the very best out of a man by placing confidence in him and making him feel that he is in truth your brother. (Applause.) Our business connections are world-wide. We have representatives in all the civilized parts of the world, and I have no doubt our business will continue to grow, and I can assure you that you shall join in the prosperity of the firm." A number of other toasts were drunk, which evinced the good feeling existing between the employees and employers of the firm. A very pleasing incident of the evening was the presentation to Harold Wilson, on the attainment of his 21st birthday, of a fine oil portrait of his father. The portrait was the gift of the employees, and on the presentation Mr. Wilson was greeted with a hearty round of cheers.

The firm is represented in Canada by D. K. McLaren, Victoria Square, Montreal.

## Textile Design

## WOOLEN SUITINGS.

No. 1.—2,040 ends in warp; 32 ends per inch; 8s reed; 4 in a reed; 41 picks per inch; 64 inches in reed, 56 inches wide when finished. Weight, 19½ ounces.

## Warp:

Ends.  
70 mixture, 14 skeins woolen.  
2 red 20 " "

—  
72 ends in pattern.

## Weft:

Picks.  
88 mixture, 15 skeins woolen.  
2 red, 20 " "

—  
90 picks in pattern.

No. 2.—1,500 ends in warp; 24 ends per inch; 6s reed; 4 in a reed; 30 picks per inch; 64½ inches in reed; 56 inches wide when finished. Weight, 24 ounces. Four healds, straight draft. Two and two twill.

## Warp:

Ends.  
42 brown mixture, 2 18 skeins woolen.  
2 red, 2-24 " "  
10 brown mixture, 2-18 " "  
2 red, 2-24 " "

—  
56 ends in pattern.

## Weft:

Picks.  
34 brown mixture, 2 16 skeins woolen.  
2 red, 2-24 " "  
10 brown mixture, 2-16 " "  
2 red, 2-24 " "

—  
68 picks in pattern.

No. 3.—1,280 ends in warp, 20 ends per inch; 5s. reed; 4 in a reed; 22 picks per inch, 64 inches in reed; 56 inches wide when finished. Weight, 24 ounces. Plan, 2 and 2 twill.

## Warp:

Ends.  
3 light slate, 7 skeins woolen.  
8 white, " "  
3 light shade, " "  
5 white, " "  
4 gray, " "  
5 white, " "

—  
28 ends in pattern.

## Weft:

All black, 6 skeins woolen.



Design.



Draft.

## FLAX CULTIVATION IN IRELAND.\*

(Concluded from last issue.)

Now, with such examples before us, should we in Ireland have any doubt as to what steps we should take to improve our condition? I think not. We have a complete report published by the Recess Committee, pointing out how each country has overcome the depressing conditions, and each new cause of trouble as it sprang up. I am glad to say that Ireland is rapidly making progress, and our farmers in the South are rapidly forming themselves into co-operative bodies for their mutual advantage. To this movement I look forward to the general advancement of the country at large, and by means of these societies we shall be able to improve the present system of flax cultivation. First, by means of these co-operative societies, travelling instructors can be engaged to travel in certain districts, and give open-air lectures, cultivate experimental plots, and assist the farmers in deciding the opportune moment to pull, and teach them how to winnow the straw, to save the seed, direct the retting operations, and afterwards superintend the scutching and sale of the flax. It is solely by education, co-operation, willingness to be taught, that the Belgian and Dutchman can heat us in the quality of flax produced. We have a climate just as suitable, a soil more economically adapted to the crop, and the report of Herr Ludwig Langer, manager of the School of Flax Cultivation and Preparation in Trautenau, states distinctly, "Irish flax at pulling is just as good as Belgian, but the Irishman is lazy. The Belgian hurries his flax into the steep as soon as it is dry, whereas the Irishman leaves it on the field, whereby it heats less or more, does not bother his head about it, runs away off to play himself and drink. Our peasants are watchful and careful to take the flax out of steep at the proper time; the Irishman just does so whenever it suits him best." It is sad to think that a commission of enquiry should return such a report on us, but such is nevertheless the case, and to look at the Irish flax which is put upon the market, one can hardly help but think that the foreigner was not so far wrong; but in any case it is high time some decided steps were taken to form societies among our farmers to enable them to employ experts to teach them, and show them how to improve the present system of flax cultivation; and experts should be distributed in various localities to not only grow experimental plots, but also assist the farmers in their localities. It would not take much capital to start the experiment, and societies at first should only be started close to a country spinning mill, the owner of which could superintend the expert in his work, and influence the local farmers to carry out his instructions and advice.

In order to illustrate the advantage of having an expert to guide and instruct the farmers, I can quote a case in point. Last season, which was one of the worst on record for Irish flax, we sent a Dutch expert down to the County Mayo to act as a travelling instructor to farmers growing flax there. We also arranged with eleven different farmers to grow each an example plot of one acre, following out exactly the instructions given by the expert. The position of each plot was selected as nearly as possible close to a number of farmers cultivating flax, so that all could see what was going on upon the nearest sample plot, and apply the same ideas to their own fields of flax. The result of all this was, that in spite of the worst flax season on record, the average price per stone of flax for last year in that district was 6s. 0<sup>1</sup>/<sub>4</sub>d. per stone, compared with 5s. 11d. per stone in 1895, and 5s. 7 3<sup>1</sup>/<sub>4</sub>d. per stone in 1894. The average return per acre (Irish) of the experimental plots was £18, and the average yield 55 stones per acre. The result of the experimental plots was greatly affected by our trying Dutch seed upon the half of two of them against Riga seed on the other half. The Dutch seed was practically a failure, and reduced the average return of all by easily £2 per

\* Abstract of a paper read by Frank Barbour before the Chemico-Agricultural Society of Ulster, on 26th February, 1897.

acre. Now, if such results have been attained in an abnormally bad season like the last, what should be done in average years? There is no reason why the lowest price for Irish flax should ever be less than £42 or £45 per ton. It is exceedingly rare to see water-retted flaxes selling below these prices on the Rotterdam or Belgian markets.

Before now money has been allocated by Government and by the Flax Supply Association to assist and improve flax cultivation, and great good was done; but the effect of the teaching died out when the money was withdrawn. No doubt the money was carefully spent, but not properly; now, however, is an opportunity of applying money in a thoroughly business-like manner, and instead of "spoon-feeding" farmers, as has been done hitherto in applying public grants, let farmer, spinner, and Government all co-operate together, and each share in advancing the general welfare of the other. Already great interest has been developed in the idea of forming a flax society upon the principles laid down in my letter upon this subject in Dromara district. After a society has been started and running for a few years, a fund can be allocated to purchase the flax straw from the members, and hold the straw over until the following summer to be retted. This is, of course, the proper way to handle the straw to get the best results. The committee of the society, aided by their expert, could determine the value of each member's straw, and pay him accordingly, then the society could rett and scutch the straw at their own retterie, and divide up the profits amongst the members of the society. It is universally acknowledged that the purchase of the flax straw from the farmer, and relieving the farmer from the retting and scutching of his flax, is the only solution of the flax problem; and we often see letters to this effect in the local papers. It is very easy to point out mistakes, but it is a different matter to suggest a remedy. It is useless to think that any company can be formed to buy straw from the farmer. The difficulties of inducing farmers to sell their straw at a reasonable price will deter any company from being formed, and the only way out of the difficulty is by means of co-operative societies among the farmers themselves for this purpose; and if such societies were started I am sure that spinners would once more come forward along with the Government and give the societies a helping hand by taking a goodly number of shares in each society. And once the society was firmly established then the shares could be bought back from the spinners, who could then devote the money to the formation of other societies for a similar purpose. The Board of Works will advance money to corporate bodies for the erection of creameries and flax-scutching mills, repayments to be made in forty half-yearly instalments; the interest charged will be 3<sup>1</sup>/<sub>2</sub> per cent. By obtaining such an advance from the Government the cost of working a flax society is considerably reduced from the cost shown in my estimate; much less capital would be required, and the starting of flax societies will not be such a great difficulty after all. A few societies started in Ulster would soon show such an immense improvement in the quality of flax produced and the prices realized for it, that the movement would rapidly extend all over Ulster, and gradually work its way down to the South and West of Ireland, just as the co-operative movement has pushed its way from the south to the north, and just as the co-operative creamery butter has once more re-asserted the supremacy of Irish butter when properly made, over all others, whether Danish, English, or Swedish; so will Irish flax worked on the same business principles and proper methods return again to the high position it once occupied in the markets of the world.

It is the intention of the Northumberland, Ont., Paper Company to erect a large building, probably one hundred feet long, on their premises at Ranney's Falls, to be used as a machinery room. A number of men have been at work for some time quarrying and drawing stone, says the *Campbellford Herald*, and already about 100 cords have been piled upon the site ready for use.

## TEXTILE PATENTS.

No. 56,053 — In an apparatus for tanning, the combination with a tanning vat of a pair of oscillatory bars, each provided with a series of hooks. The upper and lower series of hooks being in different vertical planes, the whole being connected with a driving mechanism. E. D. Kolstan, Pennsylvania, U S

No. 56,054. — A darning implement comprising in combination a table having an opening in its upper surface, a frame fitting over the table having an opening registering with the opening thereof, and adapted to clamp the goods upon the table, a set of stationary hooks carried by the frame at one end of the opening therein, a warp-head adjustably mounted on the frame having a set of hooks arranged at the opposite side of said opening, and a pivoted plate carrying the third set of hooks adapted to work in the interspaces between the stationary set of hooks, and to alternately raise and depress one set of the warp-threads as said plate is rocked upon its pivot, the set of stationary hooks and the set of hooks on the pivoted plate having their points laterally inclined at an angle to their bodies but in opposite directions. A. E. Smith, Chicago, U S

No. 56,157 — A fabric brushing machine having its brushes enclosed in cases which are connected with blowers. F. A. H. Dewald and E. Cripell, Catskill, N Y.

No. 56,223. — In making double stuffs for underclothing and the like, the use of unprepared and raw material for the inner part still containing its natural and greasy matter, and prepared material for the outer part. C. Muhlringhaus, Lennep, Ger.

No. 56,261 — A process in cleansing and extracting fat and grease from wool, which consists in washing the wool with a solvent such as rectified petroleum or other liquid having a boiling point substantially between 170 and 250° centigrade, the solvent being maintained at a temperature which will not injure the wool, and afterwards recovering the solvent by distillation. P C McIlhiney, New York.

No. 56,272 — In straight and bar latch knitting machine modifications in the manner of controlling the movements of the needles, etc. R Collands, F. W. Pare, and J. H. Smith, Nottingham, Eng.

## WOOL SORTING IN ENGLAND.

The care taken of the workingman in England is shown by the following rules for wool sorting which have been prepared by Government officials, who adopted nearly all the suggestions made jointly by the Chamber of Commerce, and the Bradford and District Trade and Labor Council, and as they are satisfactory to both sides it is stated that they will undoubtedly be acceptable to all concerned.

1 Bales of wool or hair shall, whenever opened for the purpose of being sorted, be so opened by men skilled in judging of the quality and condition of the material.

2. All alpaca, Pelitan, cashmere, Persian, and camel hair shall be opened over a fan with a downward draft, in a room specially set apart for the purpose, separate and distinct from any sorting room, and from any room in which work (other than opening) is carried on

3 Van mohair shall be washed and sorted while damp if sorted at all. Persian shall be washed or disinfected as far as possible before being sorted. Damaged wool or hair, fallen fleeces, and foreign skin wool, or hair of the descriptions named in Rules 2 and 4, shall be washed before being sorted

4 No alpaca, Pelitan, cashmere, Persian, camel hair, or mohair shall be sorted except in rooms provided with extracting fans, so arranged that each sorting board shall be independently connected with the extracting shaft by means of a funnel-shaped opening, not less than 10 inches across at the top, in such manner that the dust may be drawn downward. The draft shall be maintained in constant efficiency while the sorters are at work, and shall be such that not less than 75 cubic feet of air per minute are drawn by the fan from beneath each sorting board. The extracting shaft shall be cleaned out at least once in each week

5 The dust collected by the fan shall be discharged into properly-constructed receptacles, and not into the open air. This dust, together with the sweepings from the floors and walls of the sorting room, and from under the sorting boards, shall be removed at least twice a week

and burned. All pieces of skin, scab and clippings, or "shearings," shall be removed daily from the sorting room and disinfected or destroyed. All bags in which dangerous wool or hair has been imported shall be picked clean and not brushed.

6. No person having any open cut or sore on any part of his body shall be allowed to sort.

7. Proper provision shall be made for the keeping of the sorters' clothing and food outside of the sorting room. No meals shall be allowed to be taken in the sorting room. During meal hours the windows shall be kept open.

8. No bale wool or hair shall be stored in a sorting room, nor wool of any description, unless the same be effectually screened off from the sorting room. An air space of at least 1,000 cubic feet shall be allowed for each sorter, exclusive of the portion screened off.

9. The floor of the sorting room shall be thoroughly sprinkled daily with a disinfectant solution and swept daily (immediately after sprinkling) after the work is done.

10. The walls and ceilings of the sorting room shall be lime-washed at least once a year.

11. Requisites for treating scratches and slight wounds should be kept at hand.

12. Proper and sufficient appliances for washing, including basins, water, soap, nail brushes, and towels shall be provided in or near the sorting rooms, for the use of sorters.

13. If, on opening a bale of wool or hair, any fallen fleece or damaged material is discovered, the person opening the bale shall report the discovery immediately to the foreman.

14. Every sorter having an open cut or sore on any part of his body shall immediately report the fact to the foreman

15. No sorter shall keep in the sorting room coats or other articles of clothing besides those he is wearing. No meals shall be taken in the sorting room.

16. If the draft at any sorting board, or the fan, or any other appliance necessary to the production of such draft, is found to be out of order, the sorter, or any other person becoming aware of the defect, shall report it to the foreman at once.

## THE GLOBE WOOLEN MILL.

Editor CANADIAN JOURNAL OF FABRICS.

DEAR SIR,—Your paper received, and I have read the letter re "Globe Mills." Your editorial remarks are, I think, a complete vindication of the directorate, and I am indebted to you for having put the matter so well and conclusively.

There is one point on which I desire to correct you. I refer to the sentence beginning on the 13th line of page 227, where you say that the loan of 1896 was unsecured, except by \$5,000 bonds. There were two loans of \$25,000; one in 1895 and one in 1896. The loan in 1895 was secured by \$20,000 of bonds, leaving \$5,000 unsecured; the loan of 1896 had no security whatever. I think that that makes the position of the directors all the stronger. Would you kindly make the correction in your next issue? I shall be pleased to give you any further information you may need. Yours truly,

AND. S. ROBERTSON.

## OILING WOOL.

It is a commercial term, and although it is known only as wool at the mill, from the beginning to the end of manipulation, it is treated as fibers. That is to say, the fibers are treated as nearly alike as possible. Hence, the subject must be considered from a microscopical point of view, and in this sense we will supplement the assertion of preceding papers that the microscope is not only essential, but it is of supreme importance in the manipulation of fibers understandingly.

"Go back with me, if you will," says a writer in a contemporary, "to the old days when we were supposed to know less about the application of oil to wool than we do to-day. No one but the boss carder himself undertook this task at that time. He pulled off his boots and stockings, rolled up his trousers legs as far as they would go, walked from right to left over the thin layers of wool with a pail of warmed oil, distributing it by hand, flitting it from his fingers as he passed

slowly along. Each layer was whipped after the application of the oil, as is customary to-day. This was a slow process, but it may be questioned whether it has ever been improved upon. Then followed the paddle, with and without holes. This method spilled two-thirds of the oil near the feet of the operator, however careful and painstaking he was. This, again, was succeeded by the garden sprinker, an improvement more imaginary than real over the paddle, in that it delivered more freely when full than when near the bottom of the can. The process is variable throughout, not only in the matter of pressure, but also from the swing of the can, which deposited more at the feet than at the turnings. There is no exact regularity of distribution by either of the two latter methods, though by the first it is possible to attain approximate regularity. The object in oiling wool is to lubricate the individual fibers, every one in the batch, not a portion here and there, nor an excess on one portion and none at all on another. Whipping is supposed to assist in evening up minor inequalities of distribution, and this it does, but it cannot equalize saturation. Wool fibers will absorb a certain amount of oil, and all in excess of this is loss. They will also hold large quantities of oil in excess of absorption, as in the case of a handful of fibers dipped in oil. This is saturation, and is the evil attendant upon the use of the paddle and sprinker. The walls and floors of oiling and gauze rooms are mute evidence of this. Barrels of oil are absorbed in this manner, which is not only wasted, but is a source of great danger. If walls and floors are covered with zinc, then the oil is distributed elsewhere. All loose oil will find its way to whatever will absorb it. It will not remain on the fibres if they come in contact with anything else. It is therefore plain that every drop unabsorbed by the fibres is wanted, but just how much one can only guess by the quantity distributed about the mill in places where it ought not to be. When known, if ever, the manufacturer will have discovered one of his leaks. To day, if he considers it at all, it is in the light of a necessary evil. A microscopical examination of a batch of oiled wool is a revelation. It should not be used directly after the oil is applied. It is better to lie over night and even longer, as fibers will not absorb oil instantly, and colored fibers will not absorb as quickly as those in the natural state, and if the scales are very much hardened, there is no absorption. The most carefully prepared batch, after lying for twelve hours, and even a longer time, will show at least twenty per cent. of the fibers with oil perfectly absorbed, and the remainder in every conceivable condition, from perfect saturation to the faintest trace of oil. It is, of course, impossible to treat every fiber of a batch, large or small, exactly in the same manner in this matter of applying oil, but any neglect or failure to make the best of present methods is attended with grave risk. The more evenly wool is oiled the better it will card and spin, the easier it will clean in the cloth, and the better it will full.

Soaps must be gauged to remove all oil in excess; if gauged for fibers carrying only the necessary quantity to soften and render them pliable, a smaller quantity, and less strength, could be employed. It is not necessary to mention the effects of strong soaps upon colors. Much of the danger from this source would be removed if oil could be applied to fibers as it should be. I have given this matter of oiling wool some attention, and have looked upon it as a kind of companion evil of variable tension. A perfect remedy has not yet been devised for either, but both are sources of evil that will greatly benefit the manufacturer if overcome. The oil evil I consider the greater of the two, as among other things it affects the elasticity of the yarn. It is doubtful whether out of every four quarts used more than three are actually absorbed by the fiber. This may appear to some to be a broad statement, but a little examination and thought upon the matter will prove almost startling. It is a big leak, and calls for attention.

#### GLOBE WOOLEN MILLS CASE.

Editor CANADIAN JOURNAL OF FABRICS.

Sir,—With reference to the letter on the Globe woollen mills case in your last issue, and to the explanations made in behalf of the management of the mill, I would like to make one or two observations. It is quite true that a man who takes stock in a joint stock company cannot be held liable for more

than the amount of his stock, but while the directors of the Globe Woollen mills cannot be legally held responsible for more than their investments, the fact remains that the large amount of credit that was given by various firms to the mill was obtained solely on the character and standing of the directors, such as A. F. Gault and Sir Donald Smith, moreover, it is the general opinion that they must have known long ago that the concern was insolvent. In view of this knowledge, is it not strange that the directors of this mill should within six months of their declared insolvency have bought supplies and machinery to the extent of over \$15,000? It is this that constitutes such a bitter pill for some of the creditors to swallow. I am, sirs,

Yours truly,  
—  
ANOTHER CREDITOR.

#### PAPER AND PULP.

The Joliette Lumber Company's mills at St. Gabriel de Brandon, Que., is handling pulp wood at the rate of 50 cords barked per day, besides cutting 50 to 60 thousand feet of lumber daily.

A. Cushing & Co. offer to erect a pulp mill of a capacity of twenty tons per day, near their big saw mill at the St. John Falls, if the city of St. John will supply the water free. The mill would cost \$150,000, and will pay out \$60,000 a year in wages.

McOuat & McRae, founders and machinists, Lachute, are getting very busy on orders for their specialties. This firm makes a patent frost dog and patent timber gauge for lumber manufacturers, both of which are coming into general use as the best thing of the kind yet invented. They also make a "stuff" pump for paper mills, which is now used by all the leading paper and pulp mills of Canada. These and stationary fire pumps and friction clutches are among the special lines made by this progressive firm.

The Chicoutimi, Que., Pulp Company is progressing rapidly with the construction of its mills at Lotbiniere Falls, and expects to employ from 250 to 300 men the first year. Later on, it intends to add a paper factory to its pulp mill.

"On the whole, perhaps, no industry will feel the changes so much as that of woollen textiles," says the *Monetary Times*, when discussing the tariff. "In their case the new tariff will often come as the proverbial last straw. Many of the smaller concerns had for some time been in a position from which virtually all hope had fled. Antiquated machinery, inadequate capital, out-of-date methods carried with them the germ of fatality; and a liberal estimate of the permanent survivors is not more than one in ten. The rest had become moribund under a tariff of 50 or 60 per cent. The survival of the fittest, even here, may teach us what are the lines of woollen textiles in which we can make our way. At the first international exhibition Canadian blankets took the first prize. Here was a hint how to select one line of goods in which we ought to be successful. Halifax tweeds, which flourished in the absence of special tariffs, pointed another road to success. This domestic manufacture, as it was in its primitive state, has practically disappeared. In the development of local factories, which began by doing customers' work, there have been regrettable features; many of them have unfortunately failed to pass into the modern factory, not having been in a position to take advantage of methods which elsewhere bring success. The survivors will owe their success to their having done so."

### 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 Lambton, Ont., woollen mills are running overtime.

The Militia Department is calling for tenders for stores.

The Woodstock, N.B., Woollen Co., Limited, is now running full time.

Harding & Son's shoddy mill, Simcoe, Ont., now employs twenty hands.

Chas Kuso, of Listowel, Ont., is managing the flax mill at Atwood, Ont.

The Auburn Woolen Mills, Peterboro', Ont., are running two hours overtime.

Adam Loomis & Sons, Sherbrooke, Que., are now running their mills overtime.

The *Calgary Herald* says that the Midnapore Woolen Mills are running full time.

H. S. Osgood, glove manufacturer, Preston, Ont., is fully employed at present.

Moorehouse, Dodds & Co., Glentay, Ont., have orders ahead and are running overtime.

The Brodie Mills, at Hespeler, Ont., are having an extensive system of fire protection installed.

A meeting of the inspectors of the estate of R. Gemmill & Son, Perth, Ont., was held recently.

The Eagle Brand Manufacturing Company, suspenders, etc., is commencing business in Montreal.

The woolen mills at St. Mary's, Mitchell, and Stratford are all reported to be working to their full capacity.

The Penman Manufacturing Co., Paris, Ont., are running full time, and have some months' orders ahead.

The Globe Woolen Mills, Montreal, are to be sold by public auction at the premises, as advertised in this issue.

W. A. Thompson and Boyce Thompson were discharged when arraigned on the charge of defrauding creditors of the J. Eaton Co.

The Canadian Colored Cotton Co.'s Mills are fully employed, and prospects for the season's business are exceedingly good.

Slingsby & Waltho, woolen manufacturers, Dunnville, Ont., are now putting in new looms for the manufacture of carpets.

At Port Dalhousie, Ont., a bonus of \$6,500 to the Toronto Rubber Shoe Company was carried on a popular vote recently.

One of the mortgages of the Markham woolen mill has been paid off, and it is reported the mill will be in operation again next month.

Wylie & Shaw's, woolen mill, Almonte, Ont., is now running sixty hours a week. For some time past it was running short time.

The Yarmouth, N. S., Duck and Yarn Co., recently made a large shipment of canvas to Yokohama, Japan, via Digby and Vancouver.

Jno Fletcher, employed in Wylie & Shaw's woolen mills, Almonte, was quite badly injured by the breaking of part of the picker on which he was working.

Duplicates of the carpet made for the Canadian cottage at Bisley, Eng., by the Toronto Carpet Manufacturing Co., are now on sale in the carpet departments of leading retailers.

Mr and Mrs Peter Dunlop, of Marcellus, N.Y., recently visited their Almonte, Ont., friends, where Mr. Dunlop was formerly head of a department in the Rosamond Woolen Co.'s mills.

Robert Hill, employed in A. G. Loomis & Sons mill, Sherbrooke, Que., was so seriously injured recently by getting his hand caught in the picker, that the arm had to be removed at the elbow.

W. F. Lowe, head of the carding department in the Rosamond Woolen Co.'s mills at Almonte, Ont., who is a poultry fancier, won a large number of prizes at the Exhibition in Montreal recently.

A charter of incorporation has been granted to J. Hogarth and E. T. Dufton, O. Fleischhauer, J. Henry, A. McPherson, J. Walsh and J. H. Kenner, F. Richardson, and A. M. Kay, Stratford, Ont., as "The Perth Flax and Cordage Company, Limited," with a total capital stock of thirty thousand dollars.

Several gentlemen connected with the Montreal Cotton Company are in Ottawa to-day, it is said, with the object of interviewing the Government about water privileges, in view of a contemplated extension of the big mills at Valleyfield, Que.—*Montreal Star*.

Jas. Lockhart, previously in business as a manufacturer's agent in Toronto, has opened an office in the Manchester buildings on Melinda street, Toronto, where he will act as general agent for the adjustment and collection of accounts, and as an appraiser and arbitrator.

A charter of incorporation has been granted to D. Jamieson, M.D., H. Parker and J. A. Hunter, merchant, Durham, Ont.; Daniel McDougall, Bentinck, county of Grey; G. Biznie, Glenelg, county of Grey, as the Durham Woolen Mills Company, Limited, with a total capital stock of twenty-five thousand dollars.

Messrs. Thos. Wayman & Co., Halifax, England, have just consigned to their agent, R. S. Fraser, Montreal, sample lots of English pick lamb's wools and fleece wools, and intend carrying a large stock in Montreal to develop this trade. Messrs. Wayman do a large business in the States, and carry a heavy stock in Philadelphia, and now intend pushing the Canadian trade with stocks in Montreal with their agent, R. S. Fraser, who will be pleased to show samples. Mr. Wayman will visit Canada in October, and call on the manufacturers.

The woolen mill at Palmerston, Ont., owned by Thomas Waterhouse was destroyed by fire on the night of the 10th inst. No particulars are to hand, but we understand that there was very little insurance. Mr. Waterhouse was in Toronto attending the Exhibition at the time of the fire. It was a one-set mill, devoted to tweeds, flannels and blankets. Mr. Waterhouse, who is a cousin of John Waterhouse, Tilsonburg, will have the sympathy of many friends in his loss.

D. Morrice, Sons & Co. have withdrawn from the representation of the Dominion Cotton Mills Co., Limited. A Montreal correspondent, writing of the change, says that Messrs. D. Morrice, Sons & Co. were not satisfied with the policy of the Dominion Cotton Mills Co., and that certain proposals were made by the company which they could not accept. They therefore resigned the agency. The *Montreal Herald* says: "Just at present the cottons manufactured by the two companies in question are turned over to one selling agency, and then distributed throughout the wholesale trade. The scheme now is to cut the wholesalers out altogether, and dispose of the cottons direct to the retailers."

A new firm of wool dealers has been established in Toronto, under the style of Wilson & Co., with offices at the corner of Front and Church streets. The firm is composed of J. S. Wilson, formerly with John Hallam, and later a member of the firm known as the Calvert-Wilson Wool Company. The circumstances which led Mr. Wilson to sever his connection with this firm are already known to many of our readers. C. E. Calvert was committed for trial on a charge of criminal libel against Mr. Wilson, the grand jury having returned a true bill a short time ago. The case will come up for trial at the assizes next November. Meantime Mr. Wilson has gone into business, as stated, having associated with him J. Y. Wilson, late of Bradford, England. The latter gentleman was connected for many years with a leading English wool house. Mr. Wilson's special knowledge of Canadian wools, and his partner's experience in the British wool market, should give the new firm many advantages, and their friends will wish them success.

The Egyptian cotton crop just closed, amounted to about 584,390,000 pounds, double that of a decade ago, and over a million pounds in value beyond that of 1896. Accounts of the crop now beginning are entirely favorable, and indicate a total yield of more than six hundred million pounds.

**Wool Washers**  
Driers and Carbonizers

**KITSON** - - -  
**MACHINE CO.**  
LOWELL, MASS.

THE FALL TERM

OF THE

**L**owell Textile  
**S**chool

LOWELL . . . . MASS., U.S.A.

Commences

October 4th, 1897

The most Modern  
and Best Equipped  
Textile School in the  
World.

INSTRUCTION  
GIVEN IN



All Branches of  
Textile manufacturing

Including Carding and Combing cotton and wool,  
Spinning cotton, wool and worsted yarns, Weav-  
ing and Designing all varieties of Textiles, Chem-  
istry and Dyeing, Mechanics and Applied Art.

SEND FOR CATALOGUE TO

**C. P. BROOKS, Director.**





**English, Australian and  
B. A. Wools  
Tops, Noils and Wastes**

ALSO SPECIALTIES IN

**ALPACA MOHAIR CASHMERE  
VICUNA CAMEL HAIR  
PERSIAN and other Foreign Wools.**

**ROOT, BENN & Co.**

BRADFORD, ENG.

Agent. **ROBERT S. FRASER, 3 St. Helen St., Montreal**

**Medalists**  
City and Guilds of London, Eng.  
in the Technology of Dyeing in Theory, Practice and Chemistry of Dyeing.

The above should be satisfactory proof to our competitors, as well as our patrons, that we understand our business. Some make great advertisers, but where is their record of what they can do? Re-Dyers and Finishers of Dry Goods in the piece. Also Millinery Goods.

**BRITISH AMERICAN DYEING CO., Gold Medalist Dyers**

Principal Offices:  
221 McGill St., Montreal      123 Bank St., Ottawa  
50 King St. East, Toronto      47 John St., Quebec  
JOSEPH ALLEN,      W. R. ALLEN, Technical Chemical Dyer, and Medalist City  
Managing Partner.      and Guilds of London Inst., Eng., in charge of Works.

**TEXTILE IMPORTS FROM GREAT BRITAIN.**

The following are the sterling values of the textile imports from Great Britain for July, 1896, 1897, and the seven months to July, 1896, 1897:—

EXPORTS TO CANADA.	Month of July.		Seven months to July.	
	1896.	1897.	1896.	1897.
Wool .....	£ 214	£ 4,814	£ 5,680	£ 16,805
Cotton piece-goods .....	978	668	4,377	4,101
Jute piece-goods.....	9,830	11,530	89,322	65,617
Linen piece-goods.....	12,595	11,912	93,609	69,989
Silk, lace.....	....	....	....	....
" articles partly of.....	....	....	....	....
Woolen fabrics and worsted fabrics.....	65,472	70,562	343,928	345,979
Carpets .....	5,383	8,630	113,541	90,262
Apparel and slops.....	32,697	27,681	199,983	159,791
Haberdashery .....	12,726	10,320	89,852	86,221

A COMPREHENSION of things Canadian is not uncommon in England now, still we seldom find a journal which has the grasp of our political situation displayed by the *Textile Mercury* in the following paragraph: "The United States is not meeting with a great deal of success in the policy of bringing to bear its dead weight against neighboring States to compel them to join the Union. For thirty years it has been trying this policy upon Canada, and has made tentative essays upon Jamaica. It has hampered the commerce of the former; it has harbored traitors from this country, and has permitted, if it has not encouraged them to make armed invasions of Canada's territory; it has worked its own tariff laws as offensively as possible all along its parallel borders; and it acquired Alaska from Russia in order that it might have a foothold from which it could annoy Canada in the rear. This it has done by attacking the Canadian sealing industry, an attack it is using as an irritant for all it is worth. All these actions are both understood and carefully noted, though American politicians perhaps think otherwise. And what is the result? This: Canada is more closely bound to the Mother Country now than ever in her history before. And this attachment is not in a disagreeable thralldom, but by the silken bonds of affection which are a pleasure to bear."

ESTABLISHED 1859

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

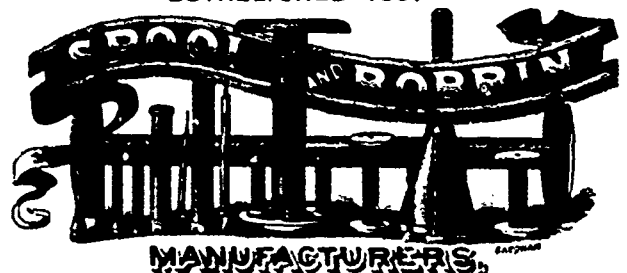
MANUFACTURERS OF

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

THOMAS KER      J. HARCOURT

**KER & HARCOURT,**

ESTABLISHED 1857



Orders by Mail will receive prompt attention.

**Walkerton, Ont.**

See that all your  
**LINEN THREAD**  
 and . . .  
**SHOE THREAD**  
 carries  
 this Trade Mark



**IT IS  
 ALWAYS  
 RELIABLE**

**THOS. SAMUEL & SON, SOLE AGENTS**

8 St. Helen Street, Montreal  
 22 Wellington Street West, Toronto  
 473 St. Valler Street, Quebec

FULL STOCK CARRIED AT EACH ADDRESS

**SALE OF WOOLEN MILL.**

For Sale by PUBLIC AUCTION, on 22nd September, 1897.

**A SEVEN SET, Fully Equipped.**

The machinery is in first-class order, and of the latest patterns, and the building is fully protected by sprinklers. For particulars address:

**ANDREW F. ROBERTSON,**

GLOBE WOOLEN MILLS CO.,

Papineau Road, - - MONTREAL.

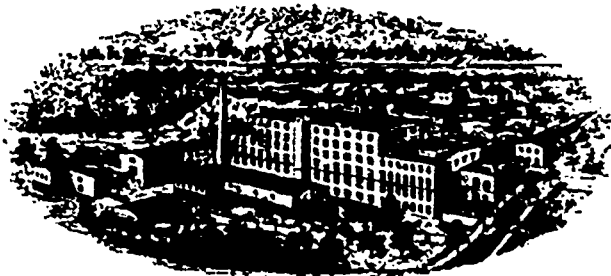
**DICK, RIDOUT & CO'Y  
 TORONTO, ONT.**

Manufacturers of

Jute and Cotton Bags  
 Horse Blankets, Hessians, Buckrams  
 Tailors' Canvas  
 Hop-Sacking, Binder Twine, Yarns, Etc.

Agents for LOUIS BEHRENS & SONS, Manchester, England,  
 Velveteens, Velvettas, Furniture Coverings.

**ROSAMOND WOOLEN CO., ALMONTE, Ont.**

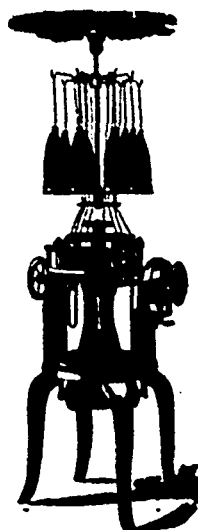


**Fine TWEEDS, CASSIMERES, and Fancy WORSTED  
 SUITINGS AND TROUSERINGS**  
 Colors warranted as fast as the best British or Foreign goods.

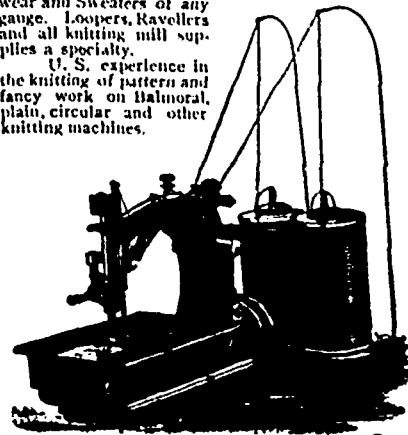
**Richard Schofield, Toronto**

Manufacturer of all kinds of

**Power Knitting Machines**



Machines for knitting ladies' and men's ribbed Underwear and Sweaters of any gauge. Loopers, Ravellers and all knitting mill supplies a specialty. U. S. experience in the knitting of pattern and fancy work on Halmoral, plain, circular and other knitting machines.

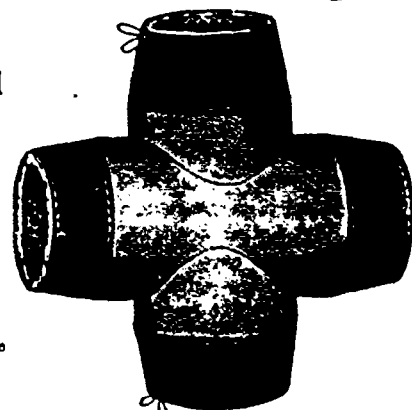


Ontario agent for the well-known Union Special Sewing Machine for plain and ornamental stitching as used in the manufacture of shoes, gloves, underwear, etc. 14 Court Street.

**... MICA ...**

**Boiler Coverings!**

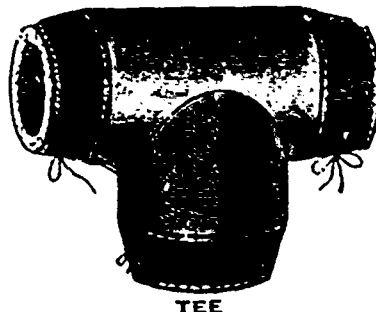
All Steam Users should See the New Mica Boiler and Pipe Covering



CROSS CLOSED.

It is Flexible, Durable and a Magnificent Non-Conductor ...of Heat...

Tested by Mechanical Experts of the Canadian Pacific Railway Co., Grand Trunk Railway Co., Michigan Central Railway Co., Boiler Inspection Insurance Co., and proved to be the **Best of all Non-Conductors.**



TEE

Full particulars, reports of trials, prices, testimonials, &c., &c., from

**Mica Boiler Covering Co. LIMITED.**  
 9 Jordan Street  
**TORONTO**

## LITERARY NOTES.

There is more than a spice of adventure about the September *Century*. "What Stopped the Ship," by H. Phelps Whitmarsh, is a story setting forth a mid-ocean mystery. A tale of peril in Alaska, called "An Adventure with a Dog and a Glacier," is by John Muir, whose timely paper on "The Alaska Trip," was printed in the August *Century*. "Prisoners of State at Boro Boedor" is an illustrated article on the experiences of two ladies in an out-of-the-way region in Java, by Miss E. R. Seidmore, author of "Down to Java," in the August number. There is another instalment of the extravaganza by Mrs. Marion Manville Pope, "Up the Matterhorn in a Boat," with pictures suggesting the daring adventures of her aeronauts. A subject of current interest is treated in a paper on "Cruelty in the Congo Free State," with photographs and notes of travel, made by the late E. J. Glave, in whom there is now an additional interest connected with his explorations in the Yukon region. Adventuresome also are the other serials—"Hugh Wynne," Dr. Weir Mitchell's American novel, and "The Days of Jeanne d'Arc," Mrs. Catherwood's study of the maid of Orleans. "Browning's Summers in Brittany," by Mrs. A. M. Mosher, is both an illustrated paper of travel, and a study of the English poet's Breton work. The variety of the number is further increased by "Glimpses of Gladstone," by Harry Furniss, with characteristic drawings of the English statesman by the writer, not before printed; "A New Note in American Sculpture," by Arthur Hooper, treating in text and illustrations of the statuettes by Miss Bessie Potter, of Chicago; the next to the last instalment of Gen. Porter's "Campaigning with Grant," and a "knowing" article by the Baron Pierre de Coubertin on "Royalists and Republicans of France." There is an editorial article on "Good Men and Bad City Government," a note by the editor on Glave's last letter and his death, and an announcement in detail of the *Century's* annual prizes for literary work by College graduates.

The United States Government printing office at Washington has made a most valuable contribution to the literature of textile fibres in the new book just issued under the editorship of Charles Richards Dodge. This work, entitled a "Descriptive Catalogue of Useful Fibre Plants of the World," is really a cyclopaedia of vegetable fibres, and in its 361 pages is compressed a greater body of information than has ever been gathered in one work. The list is arranged in alphabetical order, and the numerous illustrations of plants add greatly to its value. Over 1,000 distinct species of fibre yielding plants are here described in greater or less detail, with commercial, industrial, as well as botanical, information; and although Mr. Dodge has done what has never before been accomplished in this special line, yet he modestly presents the list as far from complete, and will be thankful to any one who will supply information concerning fibrous plants that have not been treated of. The northern regions of Canada should yield a number of such plants not generally known, and reports on these will be thankfully received by Mr. Dodge.

The *Canadian Manufacturer* has issued a special edition, which is a most valuable addition to tariff literature, as it contains "The 1897 Canadian Tariff," "The 1897 United States Tariff," "The British Tariff," "The British Merchandise Marks Act," and "The Newfoundland Tariff." The publication of these important State papers, all within one cover, conveniently arranged as a ready-reference hand book for office use, is an exhibition of unique journalistic enterprise that has never before been attempted, the importance of which cannot but be fully appreciated.

## THE WOOL MARKET.

Toronto.—The market is practically unchanged, as prices are the same as at last writing, but the tone of the market is firmer, as there is a growing demand from the Canadian mills for all grades of wools. Stocks are fairly light. There is no fleece moving. We quote merchantable fleece, 20 to 21c; rejects, 16 to 17c; pickings, 6c unwashed, 12½c.

Montreal.—The wool market here is firm at previous quotations, viz: Cape greasy, 15½ to 16½c; B.A., pulled, 30 to 35c for washed; second, 40 to 42c. The stocks in Montreal are light, but the demand is also light. Manufacturers are

holding off until they are actually wanting wool though enquiries are becoming more frequent.

—As is well known, a frequent source of "unaccountable" fires turns out to be in reality the spontaneous ignition of various materials more or less saturated with oils or fats. The following is considered a reliable list of common materials of the class which, when containing oily matters, will, under favorable conditions, oftentimes ignite naturally: waste, tow, rags, sawdust, shavings, cotton, and woollen cloth, roofing felt, and, in fact, all porous combustible bodies containing any oily or resinous substances having an affinity for oxygen. All vegetable and animal oils have more or less affinity for oxygen, while those produced from the distillation of petroleum and shale are practically unacted upon by the element; but the oils which oxidize in the air most rapidly are the vegetable oils, such as linseed, hempseed, poppy oil, etc. Briefly, by far the most frequent sources of fires from spontaneous combustion are those which result from heat induced by the absorption of atmospheric oxygen.

## CHEMICALS AND DYESTUFFS.

Business is improving, buyers are looking forward to their future requirements. Sumac is scarce and the price is advancing. Sugar of lead is firmer and sulphur very scarce, and the price for future higher. The castor oil market is very bare. The following are current quotations in Montreal:—

Bleaching powder .....	\$ 2 00	to \$ 2 10
Bicarb. soda .....	2 25	" 2 30
Sal soda .....	0 75	" 0 80
Carbolic acid, 1 lb. bottles .....	0 32½	" 0 35
Caustic soda, 60° .....	1 80	" 1 90
Caustic soda, 70° .....	2 25	" 2 35
Chlorate of potash .....	0 15	" 0 20
Alum .....	1 35	" 1 50
Copperas .....	0 70	" 0 75
Sulphur flour .....	1 75	" 2 00
Sulphur roll .....	1 75	" 2 00
Sulphate of copper .....	5 00	" 6 00
White sugar of lead .....	0 07	" 0 08
Bich. potash .....	0 10	" 0 11
Sumac, Sicily, per ton .....	55 00	to 60 00
Soda ash, 48° to 58° .....	1 25	" 1 50
Chip logwood .....	1 90	" 2 10
Castor oil .....	0 10	" 0 12
Cocoon oil .....	0 06½	" 0 07

## A. KLIPSTEIN &amp; COMP'Y

122 PEARL STREET, NEW YORK

## Chemicals and Dyestuffs

ANILINE COLORS OF EVERY KIND

SPECIALTIES

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

Also CAUSTIC POTASH FOR WOOL SCOURING

WRIGHT &amp; DALLYN, Agents - - HAMILTON, Ont.

## Cloth Finishing Press.

For double width goods, best American make, all latest improvements, and as good as new. WILL BE SOLD AT BARGAIN PRICE.

Apply

"Cloth Press,"

Montreal Office of this paper.

**A NEW DETERGENT.**

A new product is reported as an English invention, bearing the trade name of Carbosil, for which much is claimed as containing detergent properties, similar to soap, and with advantages over ordinary soda. According to the descriptions that have reached us, the product consists of a double salt of silicate of soda and carbonate of soda, with or without the addition of a small quantity of soap. In consequence of these claims, the Society of Dyers and Colorists, England, made it a subject for discussion at one of its recent meetings. Members of the association made a few trials to ascertain its value as a scouring agent for cotton goods and as a substitute for soap on the washing of cotton printed fabrics. Without subjecting the substance to an analysis, the following observations were made concerning its nature, by a member of the society:

"Its solution in water has a strong alkaline reaction and soapy feel, and on agitation the surface becomes coated with a lather. From the appearance of the solution it is thought to contain a rather large percentage of insoluble matter. The actual quantity has not been determined. The treatment with 'carbosil' has here replaced the lime and ash boil. Whether it would give as good or better results on the large scale is a

matter to be decided after performing large scale experiments. Also its economical value could then be fairly accurately determined. It might also be a good substitute for scouring back-grays before undergoing the usual bleaching process. Soap and caustic soda are now generally used for this purpose.

"Now, with reference to its action as compared with soap on the colors of printed cotton fabrics. Obviously a strong alkaline liquor cannot be used for Alizarin reds and pinks, but in the case of Alizarin purples it compares favorably. It seems to possess a very peculiar property of 'springing' or intensifying basic colors fixed with tannic acid. The substance may be of interest to calico printers should it prove an efficient substitute for soap, and more economical than the common alkaline scouring agents. These are questions, however, which could not be decided by the laboratory."

Advices from the Behring Sea by the steamer "Portland" show that the entire catch of the North American Commercial Company for the season was 20,000 skins, which are now en route to San Francisco on the steamer "Delnorte." Last year's catch amounted to over 20,000 skins. Instead of over seventy sealers that hunted last year in the Behring Sea, there are only twenty-nine this year.

**STEAM AND POWER**

**Pumps**  
& HYDRAULIC  
& MACHINERY  
**FOR ALL DUTIES**

**NORTH EY  
CO., LIMITED.**

TORONTO, ONT

**LAURIE ENGINE CO.**

Sole Agents for Quebec

St. Catherine St., MONTREAL

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

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

Are you a Manufacturer of Hats or Furs?

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

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

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

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

**SOME QUESTIONS**

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

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

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

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

Fraser Building, Montreal, Canada.

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

**ROTHSCHILD BROS. & CO.**

Manufacturers, Manufacturers' Agents and Importers

**BUTTONS.**



Offices—46 & 48 Broadway, N.Y.  
24 Rue de la Victoire, Paris, France.  
11 & 13 Front St. East, Toronto.

**Sherbrooke Yarn Mills Co.**

MANUFACTURERS OF

**KNITTING and FINGERING Wool Yarns**  
In Imitation Worsted.

Write for Prices and Samples . . . **Sherbrooke Yarn Mills Co.**  
Sherbrooke, Que.

**ROBERT & COMPANY**

Manufacturers' Agent,

**Woolen & Cotton Mill Supplies**

14 St. Michael's, - MONTREAL, Que.

**The R. Forbes Co.**

(Limited)

Manufacturers of

**WOOLEN AND WORSTED YARNS**

For Hosiery and other work

**HESPELER, ONT.**

**STRONG AND PROSPEROUS**

... THE ...

**SUN LIFE Assurance Company**

OF CANADA

Cable Address "WILDT" Leicester. A.C.C. Code used.

**WILDT & CO., LEICESTER.**

EVERY DESCRIPTION OF THE MOST IMPROVED

**HOSIERY MACHINERY.**

Wilde's WINDING FRAME on the most improved principles.  
CIRCULAR KNITTING MACHINES. FLAT KNITTING MACHINES.  
Patent Automatic SEAMLESS MACHINE for making Plain Hosiery and all other Hosiery.  
Patent Automatic SEAMLESS MACHINE for Ribbed Hosiery.

FINISHING MACHINES.

NEEDLES for all KNITTING MACHINERY.

ESTIMATES for single Machines or whole Plants by return of Post.  
Write for Illustrated Price List.

SEND TO

**H. W. PETRIE** FOR CATALOGUE

OF

**NEW & 2<sup>ND</sup> MACHINERY**

TORONTO CANADA.

**ECLIPSE**

**Binding Cases**

Letter Size.

Will Fit the Eclipse, Shannon, and all Two Arch Files.

Price Reduced to \$3 per doz.

Complete with Indexes.

**MORTON, PHILLIPS & CO.**

Stationers, Blank Book Makers and Printers

1755 & 1757 Notre Dame St., Montreal

**G. B. FRASER,**

3 Wellington Street East  
**TORONTO**

REPRESENTING

Montreal Woolen Mill, Montreal; Naps, Tweeds Blankets, &c.  
Miller Bros. & Co., Montreal; Paper Collars and Cuffs.  
A. G. Van Edmond's Sons, Seaforth Ont.; Tweeds and Hosiery.  
C. H. & A. Taylor, Galcar, near Huddersfield, Eng., Fancy Tweeds.  
Hy. Langley & Co., Huddersfield; Worsted Coatings, &c.  
James Holdsworth, Upperhead Mills, Huddersfield; Woolen & Cotton Card Clothing.  
Peter Hesenbrugh & Co., Elberfeld, Germany; Brittons, Braids, &c.  
S. M. Sherrill & Co., Cotton Brokers, Jackson, Mississippi.

**E. W. MUDGE & CO.**

5 St. Peter St. - Montreal.

**TRIMMINGS**

-FOR-

**Knitting Mills and Woolen Mills.**

**TYING-UP RIBBONS.**

**Pink & White Cotton Tapes**

**The Montreal Blanket Co.**

Manufacturers of

**Shoddies, Wool Extracts**

**and Upholstering Flocks**

Office and Works: COTE ST. PAUL.

P.O. Address: MONTREAL.

**CHAS. F. TAYLOR**

Successor to Burgess Cop Tube Co.

Manufacturer of  
PATENT MACHINE

**PAPER**

**COP TUBES**

48 Custom House St.

**PROVIDENCE, R. I.**

**U. S. A.**

**COP TUBES**  
Cones & Shells  
Worsted Tubes  
Conical Tubes  
MAILING TUBES

Haworth & Watson, Lowell, Mass.

The - - -

*Corticelli*

**SILK CO. LIMITED.**

MANUFACTURE

Tram, Organzine, Insulating  
Floss, Embroideries,  
Yarns and Twists of every  
description . . .

—ALSO—

Braids in Silk, Mohair,  
Alpaca, Lama and Cotton.

MILLS

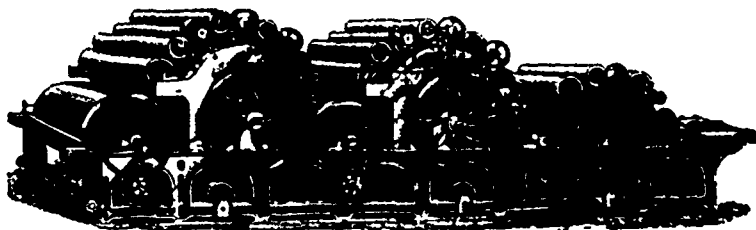
St. Johns and Coaticook, P.Q.

OFFICES

Toronto, Montreal & Winnipeg

WRITE US FOR SAMPLES AND QUOTATIONS

TEXTILE MACHINERY (New and Second Hand)



English Sales Attended.

CARD CLOTHING **TETLOW'S**

Stock in Canada

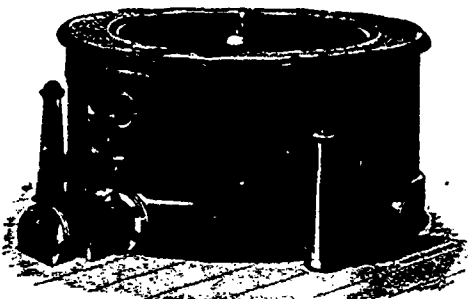
Condenser Aprons **Buffed Surfaces**  
Plain & Grooved

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

**ROBT. S. FRASER**

3 ST. HELEN ST., MONTREAL

**BROADBENT'S HYDRO EXTRACTORS**



Agents for Canada: - - SHAW BROTHERS, 164 McGill Street, Montreal.

Direct Steam Driven. No Shafts or Belting required.  
Suspended on Links and requiring no Foundation.

Adapted for **Manufactories, Dyehouses, Laundries,**  
**Chemical Works, Sugar Refineries, etc., etc.**

—SEND FOR CATALOGUE—

**Thomas Broadbent & Sons, Limited**

CENTRAL IRON WORKS

HUDDERSFIELD, - - - ENGLAND

Telegrams: "BROADBENT, HUDDERSFIELD."

**SADLER & HAWORTH**

FORMERLY

**ROBIN, SADLER & HAWORTH**

MANUFACTURERS OF

**OAK-TANNED LEATHER BELTING**

MONTREAL AND TORONTO

**CANADA GARNETT CO.**



MANUFACTURERS OF  
Garnetted Wastes  
and Shoddies  
Waste Openers  
and Pullers  
Office, 3 St. Helen Street  
Works, 19 Hancockburn  
Avenue. MONTREAL

**Loom Picker Co.**

BIDDEFORD, ME.



MANUFACTURERS  
... OF ...



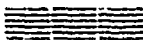
**Loom Pickers & Loom Harnesses**  
OF SUPERIOR QUALITY

**Canadian Colored  
Cotton Mills  
Company.**

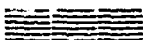
1897  
SPRING  
1897



Cottonades,	Zephyrs,
Tickings,	Skirtings,
Denims,	Dress Goods,
Awnings,	Lawns,
Shirtings,	Crinkles,
Flannelettes,	Cotton Blankets,
Ginghams,	Angolas,
Yarns, etc.	



WHOLESALE TRADE ONLY SUPPLIED.



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

Agents.  
Montreal and Toronto.

—According to the new U.S. tariff, Leicester, Cots-wold, Lincolnshire, Down combing wools, Canada long wools, or other like combing wools of English blood, and usually known by the terms herein used, and also hair of the camel, angora goat, alpaca, and other like animals, are put in the category of "class two," and wools of class two are dutiable at 12 cents per lb. Wools on the skin are dutiable at one cent a pound less, and wools which have been advanced by any stage of manufacture beyond the washed or scoured condition, are dutiable as "manufactures of wools not specially provided, for," which means that where an article is valued at not more than 40 cents a pound the duty shall be three times the duty imposed on a pound of unwashed wool of the first class. As the duty on wool of the first class (merino and similar wools) is 11 cents per pound, this means that on wools advanced beyond the washed or scoured condition the duty will be 33 cents a pound. There is, therefore, no extra duty on washed or scoured wools, but whether all Canadian wools come under the heading of class two is not yet clear to wool dealers we have consulted. As there will be no movement of wools to the United States till next spring, the wools coming in as class two will not be decided till entries are then made.

**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.

**Situation Wanted.**

WANTED, situation by an **ENGLISH DYER**: an all round hand; used to all the new colors and latest improvements. Willing to come to Canada to fill a permanent position. Address,

"J. D.,"

Care of CANADIAN JOURNAL OF FABRICS.

**AGENCY WANTED.**

A responsible firm of manufacturers' agents in St. Johns will be glad to hear of two or three leading manufacturers in the textile and kindred trades who wish to be represented in Newfoundland. Address S. & S, care of "Canadian Journal of Fabrics," 64 Church Street, Toronto.

**WILLIAM WHITELEY & SONS,**



**LOCKWOOD, HUDDERSFIELD, ENGLAND.**

Winding Machinery, Improved Self-Acting Mule, Suspended Steam Driven Centrifugal Hydro-Extractor, Tentering and Drying Machines, Patent Wool and Cotton Dryer, Patent Wool Scouring Machine, Cross Raising Machine, Patent Crabbling and Winding-on Machine, Warp Slings, Cool Air Drying and Beaming Machine, and other Woolen Machinery.

CATALOGUE ON APPLICATION

**SHAW BROTHERS, - Agents**  
164 McGill Street, - Montreal.

**JOHN HALLAM,**

83 & 85 Front St. East, - - - Toronto  
and  
88 Princess Street, - - - - - Winnipeg  
Wholesale Dealer in  
**DOMESTIC AND FOREIGN WOOLS**  
Sumac, Japonica, &c.

**LONG & BISBY**

DEALERS IN  
Foreign and Domestic  
**WOOL AND COTTON**  
GENERAL COMMISSION MERCHANTS  
**HAMILTON, ONT.**

**W O O L .**

**A. T. PATERSON & CO.**  
MERCHANTS,  
35 Francois Xavier St., Montreal.  
REPRESENTED BY MR. DAVID GUTHRIE.

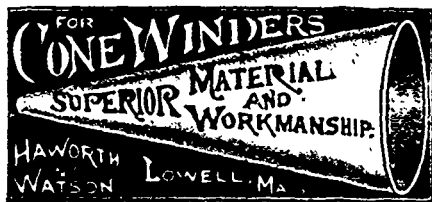
**THE SMITH WOOLSTOCK CO.**

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

**ROBT. S. FRASER**  
**Wools, Cottons, Noils, Yarns**

Specialties:  
*English Pick Lambs and Downs*  
*Foreign Wools and Noils*  
*Egyptian and Peruvian Cottons*  
*Fancy Yarns*  
3 St. Helen St., MONTREAL

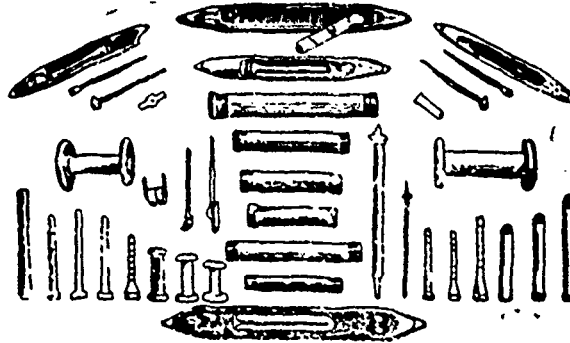
**WM. D. CAMERON,**  
*Woolen & Cotton Manufacturers'*  
*Agent,*  
HALIFAX, N.S., & ST. JOHN, N.B.  
Address P.O. Box 401. - HALIFAX, N.S.



**HETHERINGTON & ANDERSON,**

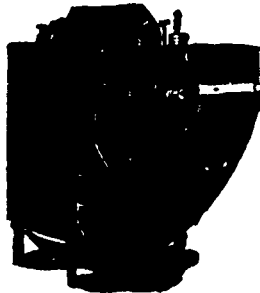
YORK HOUSE, King St., NOTTINGHAM, ENGLAND.  
**KNITTING MACHINES.** Shirt, Pant and Rib Top Machinery, Lock-stitch  
(two threads) Seaming Machines, Machines for Crochet and Embroidery  
Work.  
**SPECIAL AND LATEST CONSTRUCTION.**

**Lachute Shuttle and Bobbin Works**

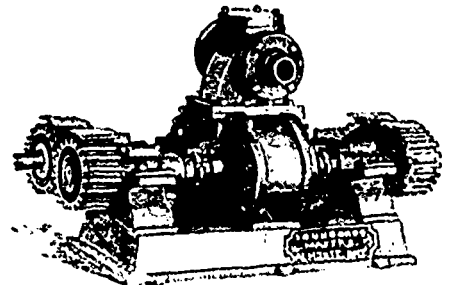


We are the largest Shuttle  
Manufacturers in Canada.  
*Slubbing, Roving and all kinds*  
*of Bobbins and Spools for*  
*Cotton and Woolen Mills.*  
We have always on hand  
a large stock of  
Thoroughly Seasoned  
Lumber.  
Orders solicited and all work guar-  
anteed to give satisfaction.  
**JOHN HOPE & CO.**  
LACHUTE, P.Q.

**MISSISSIPPI IRON WORKS**



ESTABLISHED  
1875

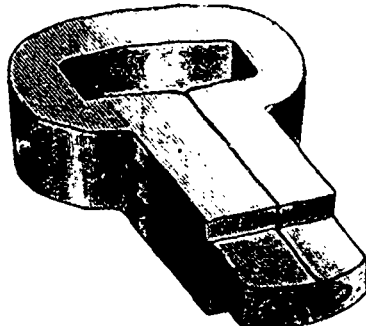


Manufacturers of English or American Fulling Mills and Washers, Wool Pickers, Ex-  
haust Fan Driers, Dusters, Rotary Force Pumps for Fire Duty, Roller Feed Pumps,  
Shafting, Hangers, Castings, Pulleys, Gearing, Forgings.  
Full equipment of mills of every kind. **YOUNG BROS.,** Almonte, Ont.

**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, Specia  
Springs, Loom and Shuttle Springs, English Cast-Steel Wire, Cotton Baling and General Mill Furnishings.  
Bloomfield Avenue and Morris Canal, **NEWARK, N. J.**



**JOHN W. BARLOW**

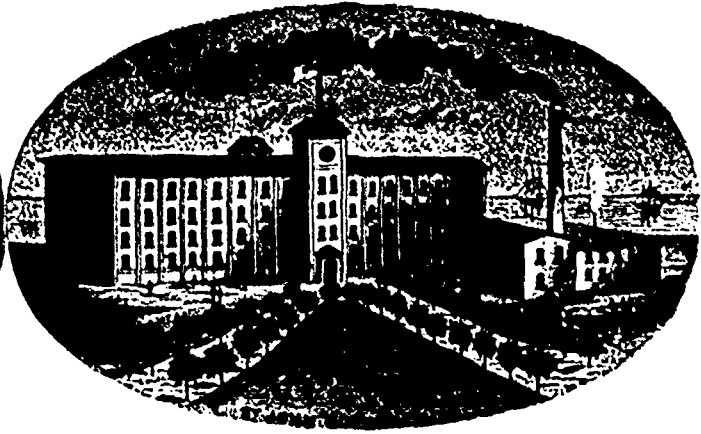
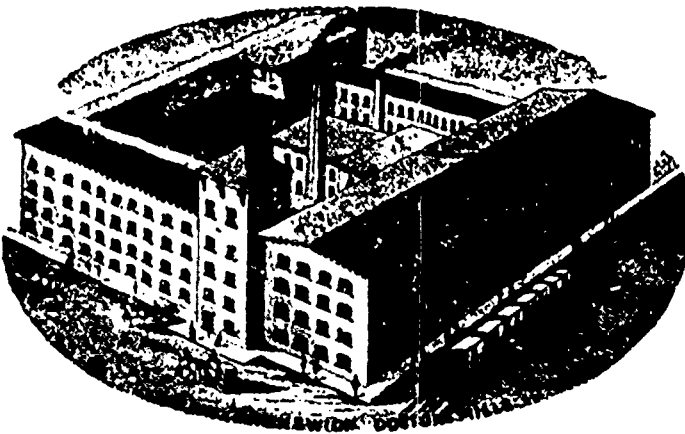
Manufacturer of  
**LOOM PICKERS,**  
LAWRENCE, MASS.

This cut represents Barlow's Pat. Bow P' with solid interlocking foot. Pat. Feb. 20.



# W.M. PARKS & SON, Limited

ST. JOHN, NEW BRUNSWICK



## Cotton Spinners, Bleachers, Dyers and Manufacturers

Yarns of a superior quality and Fast Colors for manufacturing purposes a specialty

Agents:—DAVID KAY, Fraser Building, Montreal; J. SPROUL SMITH, 24 Wellington St. West, Toronto; JOHN HALLAM, Agent for Beam Warps, 83 Front Street East, Toronto.

### PAUL FRIND WOOLEN MACHINERY CO., Limited

118 Duke Street, TORONTO

GEORGE REID, . . . . . MANAGER

#### WOOLEN MACHINERY

Carls, Mules, Looms, Pickers, etc. All kinds for sale.

#### WOOLEN MILL SUPPLIES

Every description kept in stock.

#### WOOL

Sole Agents for FRANCIS WILLEY & CO., Bradford, Eng. A large stock always on hand.

#### BEAM WARPS

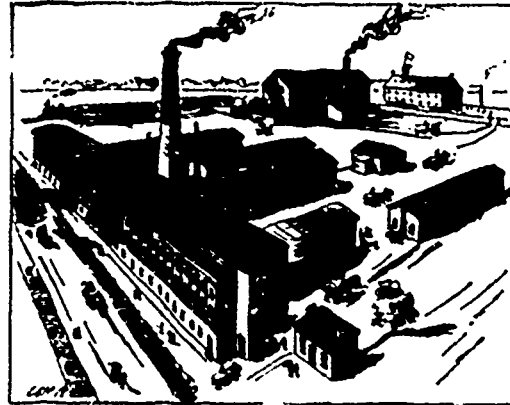
Sole Agents for HAMILTON COTTON CO.

#### MILLS FOR SALE

#### CARD CLOTHING

Our MR. REID is Sole Agent for Messrs. Samuel Law & Sons, Cleckheaton, Eng., and has always a large stock on hand.

### Hamilton Cotton Co., Hamilton



Manufacturers of  
Cottonades  
Denims,  
Hosiery  
Yarns,  
Beam Warps,  
Carpet Warps  
White and  
Colored  
Yarns,

Lampwick (standard and special sizes), Webbing, Bindings, etc., Best in the market.

SELLING AGENTS:

D. MORRICE, SONS & CO., MONTREAL and TORONTO  
Agents for Beam Warps. GEO. REID, TORONTO  
Agents for Webbing: A. McT. WATT, MONTREAL

Telegrams- Coop-Knit.

A B O Code used.

## A Revolution in Colors

### THE STURGESS DESIGNER MACHINE

For making hand knit Hosiery, Golf and Cycling Hose, Gents' Fine Socks, Ladies' Fancy Hose and Gloves.

Real Plaid and Tartan Patterns in 2, 3 or 4 colors, automatically produced at 30 pence per dozen—used to cost 30 per dozen.

The production of this machine is equal to five times the amount of any other machine on the market, and the goods are seamless and perfect in pattern at that.

Manufacturers can design their own patterns without further expense.

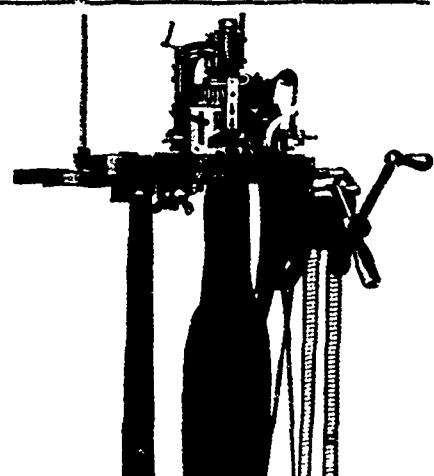
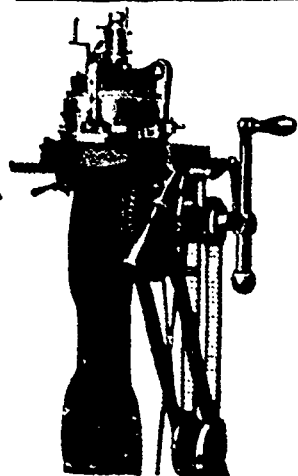
Write for particulars.

### Co-Op. Knit Machine Co.

MILLSTONE LANE,

G. F. STURGESS, Manager

LEICESTER, ENG.



# SAMUEL LAW & SONS, LIMITED

Established 1816

MOORLAND AND ROUND HILL MILLS

Incorporated 1888

CLECKHEATON, - ENGLAND

Largest Manufacturers in the World of

## CARD CLOTHING

—FOR CARDING—

Cotton, Wool, Worsted, Silk  
and other Fibrous Materials.

MAKERS OF

Plough-Ground, Side-Ground, Needle  
and Diamond-Pointed

## CARD CLOTHING

With HARDENED and TEMPERED Cast Steel Wire

PATENTEES AND MANUFACTURERS OF

Patent Rolled and Compressed Double Convex Wire, Angular, Flat,  
Round and Flat, and Ordinary Round Wire Cards.

Samples, Prices and Testimonials on application

All Orders filled promptly by our Canadian Agent, GEORGE REID, 118 Duke Street, Toronto, who has a large stock on hand.



# W. H. HARRAP

ENGINEER, MACHINIST,  
RICHMOND HILL  
SALFORD, MANCHESTER, ENG.

Telegraphic Address: "HARRAP, Salford."  
Contractor to H.M. Government.

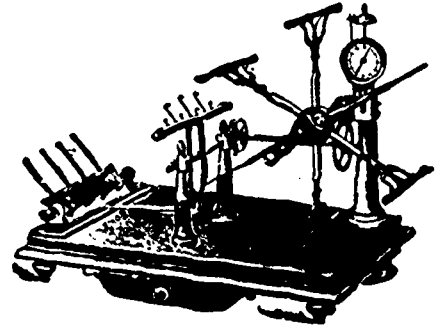
Maker of Improved Sewing Machines for sewing Piece Ends, "Wet or Dry," of any Thickness, by Treadle, Steam or Hand Power.  
Maker of latest Improved Scutcher for opening Fabrics and detaining the Twist.

Improved Machines for opening out Crimps, Creases, and Curled Edges, and Guiding Fabrics Centrally and Automatically.

Maker of Dye Jigs, Lapping Machines, Open Soaping and Washing Machines, Dampers, Bowls, Scrip Balls, Valves, Taps, and all Brass Fittings.

Maker of Wrap Reels, Wrap Blocks, Yarn Examiners, Yarn Twist-ers, Yarn Testers, Hank Quadrants, Shaft and Spindle Indicators, Barrel Stands, Umbrella Hank Stands, Worsted Balling Machines, Roller Covering Machines, Cloth Testers, Rove Reels, Cloth or Crape Measuring Machines.

ALL KINDS OF SPINNERS' ACCESSORIES

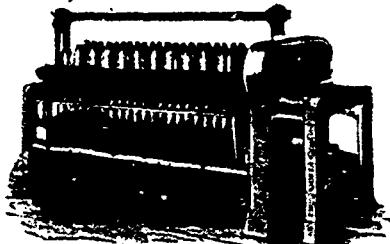


# Brooks & Doxey

Manchester, England

Telegrams :  
Union, Manchester, Athlons, Boston

Makers of Cotton, Cotton Waste and Woolen Machinery



WE have a complete set of our latest Cotton Machinery at work in our Show Rooms at 161 Pearl Street, Boston, and our agents, MESSRS. W. L. HAINES & COMPANY, will always be glad to see buyers and to explain the various valuable improvements embodied in the machines. Our machinery is made of best materials only, particular care being paid to the finish of the various parts, and is constructed very substantially so as to withstand the highest speeds, and give the greatest production combined with best quality of work.

# D. K. MCLAREN,

## BELTING.

### Card Clothing Mill Supplies,

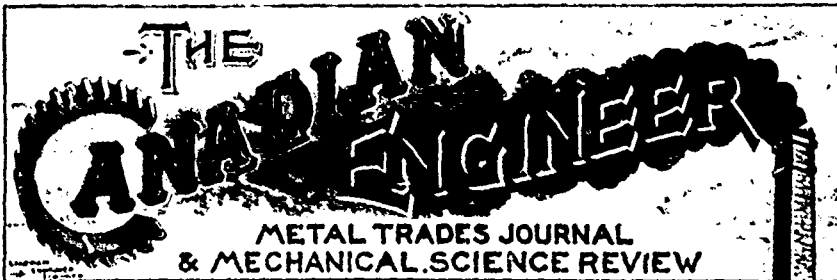


COTTON & WOOLEN SUPPLIES, SHUTTLES, PICKERS, HEDDLES, REEDS & HARNESS

Sole Agent for Messrs. WILSON & INGHAM, Mirfield, England.

24 VICTORIA SQUARE,

MONTREAL.



Please note a few  
Facts in regard to the  
Canadian Engineer

In the space of three years the Canadian Engineer has been enlarged four times, and a fifth enlargement will soon be necessary. The first number contained twenty eight pages, now it has fifty-two.

The increase in circulation in nine months preceding January, 96, was 1,500, a record unparalleled in the history of Canadian trade and technical journalism. With its present circulation of over 4,350, and with an increase of from 150 to 200 per month, the Canadian Engineer will have a circulation of nearly 6,000 copies before another year elapses. Need any more be said to prove the popularity of this journal among subscribers and advertisers?

Departments devoted to Civil Engineering, Surveying and Mining, to Mechanical, Electrical, Locomotive, Stationary, Marine and Sanitary Engineering.

Subscription, \$1.00 per year. Sample copies sent free to intending subscribers. Advertising rates on application.

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

FRASER BUILDING, MONTREAL.

62 Church Street, TORONTO

Telegrams:—"Kaolin," Manchester.

## China Clay Co.,

JOHN A. SLATER, Man'g Director,  
20 Leinster Chambers, St. Ann's Square,  
MANCHESTER, Eng.

Mines—Riddle, Bojca, Colchester, South Nine-stones, St Austell, Cornwall.

Depots—Manchester, Runcorn, Preston, Leith, London

Contractors to H M Indian Government



THE  
Curtis  
Pressure  
Regulator

for Steam, Water,  
and Air, is a regu-  
lator which is un-  
equalled for sim-  
plicity, efficiency,  
and reliability.

These regulators  
have now been in  
use for twelve years, and have es-  
tablished a reputation second to  
none.

The use of this regulator means  
decreased expenses.

Manufactured by the

**D'ESTE & SEELEY CO.**

29 to 33 Haverhill St., Boston.

New York: 109 Liberty St.

Chicago: 218 Lake St.



**HAWTHORNE**

**WOOLEN CO., Limited.**

CARLETON PLACE,  
Ont.

MANUFACTURERS OF

**Fine Tweeds,  
Cassimeres, etc.**

JAS. LOCKHART, SON & CO.,  
Selling Agents, Toronto.

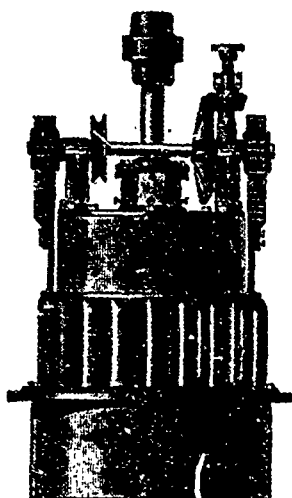
The best results in  
**Card Grinding**  
are obtained by using  TRADE MARK.

**DRONSFIELDS' PATENT  
D GROOVED EMERY FILLETING**  
SPECIALITIES; MACHINES FOR GRINDING CARDS  
MACHINES FOR COVERING ROLLERS WITH LEATHER

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

CIRCUIT 61

**THE McCORMICK TURBINE ...**



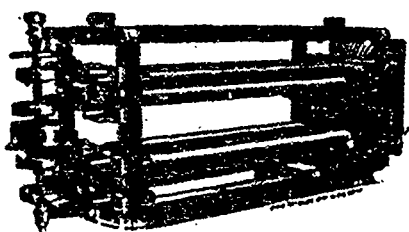
FEATURES WORTH CONSIDERATION:

Great Capacity, High Speed, Unequalled Efficiency, Steady Motion,  
Easy Working Gate, Greatest Power from a Limited Quantity of  
Water, at Smallest Cost.

Undoubtedly the Most Popular Turbine Manufactured.

Write for Catalogue.

**S. MORGAN SMITH CO., York, Pa.**  
U. S. A.



We manufacture Barker's Patent Noiseless  
Fast-running Doffing Comb

**Barker's Patent Double Apron Rubbing  
Motions for Condenser Cards**

*Are in successful operation on all grades of stock, being generally  
adopted because they change carding and spinning  
rooms for the better.*

**James Barker, Cotton and Woolen Machinery**  
Second and Somerset Streets, PHILADELPHIA, Pa.

<p>Estimates for <b>LEATHER RUBBER "THISTLE"</b> and <b>GANDY BELTING</b> will be found favorable</p>	<p>We are the only Manufacturers in Canada making <b>GENUINE OAK TANNED BELTING</b> in "Extra," "Standard" and "Dynamo."</p>	<p>We Manufacture <b>CARD CLOTHING</b> set in <b>OAK LEATHER, FLEXIFORT and RUBBER</b></p>	<p><b>HEDDLES, LOOM REEDS, PICKERS, RUB. APRONS, Etc.</b></p>
---	--	--	---

MONTREAL \* **THE J. C. McLAREN BELTING CO.** \* TORONTO

**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 Hackling  
and Spreading Machine**

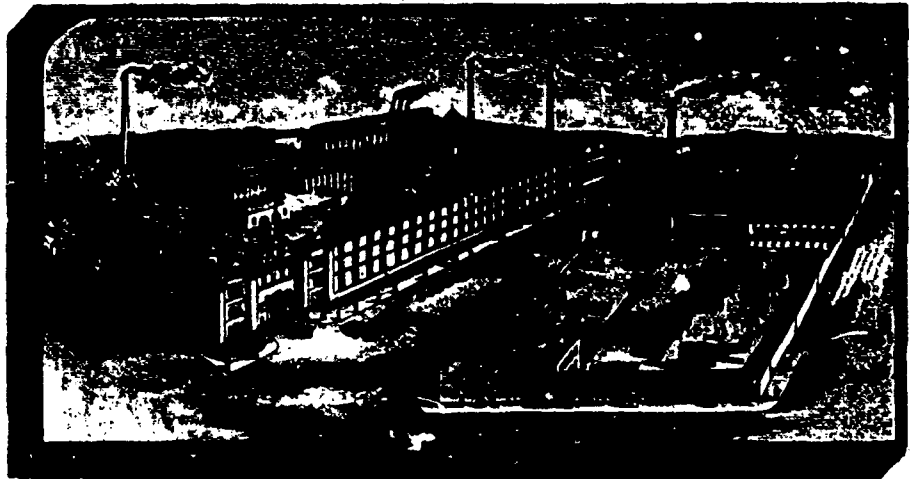
**Patent Automatic Spinning Frames  
Improved Laying Machines**

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



WRITE TO THE

**PATON MFG. CO.**

Sherbrooke, Que.

FOR

**Worsted Knitting and Fingering Yarns**

"We hold thee safe."

**The Dominion Burglary Guarantee Co.  
Limited**

Head Office, Montreal, Can.

CAPITAL, \$200,000.

Insurance against burglary and house-  
breaking. Policies clear and free  
from vexatious or restrictive clauses.

JOHN A. GROSSE, GENERAL MANAGER.

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

**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.