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# Journal of Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, JULY, 1899.

No. 7.

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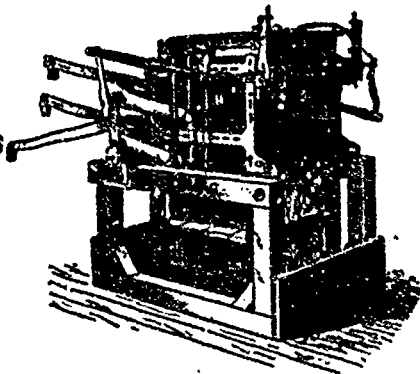
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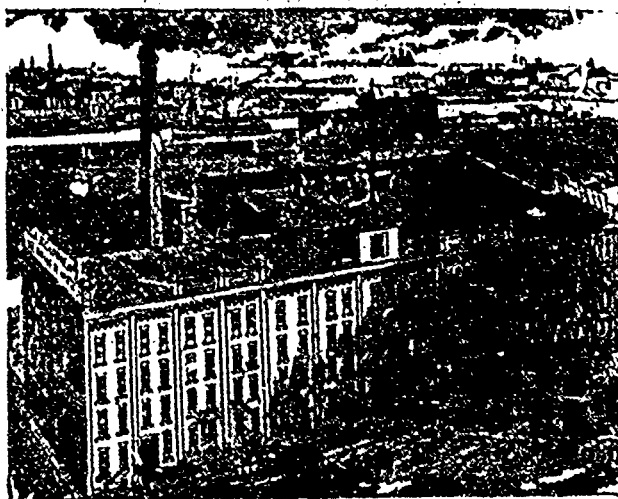
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# CANADIAN JOURNAL OF Fabrics

THE JOURNAL OF THE  
Textile Trades of Canada.

Vol. XVI.

TORONTO AND MONTREAL, JULY, 1899

No. 7.

## Canadian Journal of Fabrics

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

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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

present price of Canadian fleece is the lowest on record, and is two cents per lb. lower than the price of wool at the same season in any of the past eleven years. We submit a table of the prices paid for wool, in the first week of July, since the year 1889:

| Season. | Price of Wool per pound. |
|---------|--------------------------|
| 1899    | 14 cents                 |
| 1898    | 16 cents                 |
| 1897    | 17 cents                 |
| 1896    | 19 cents                 |
| 1895    | 20 cents                 |
| 1894    | 17 cents                 |
| 1893    | 18 cents                 |
| 1892    | 17½ cents                |
| 1891    | 18 cents                 |
| 1890    | 20 cents                 |
| 1889    | 20 cents                 |

Prices in the United States market are advancing, but there is no demand as yet for Canadian fleece, and it would appear that if Canadian wool is to find a market abroad it must do so to a certain extent as Canadian cloth. Some of our mills already recognize this, and are adapting themselves to the combing of Canadian wools for their very extensive, if not exclusive, use in many lines of worsteds, to which they are well adapted.

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### BLANKETS.

The manufacture of blankets does not occupy the amount of capital and labor in Canada that our natural advantages for this line of production would seem to justify. Canadian wools are suited for the production of blankets that cannot be surpassed for wear or appearance, and we have abundance of labor and cheap power to carry on the manufacture. Our wools are cheap, too cheap indeed, and there is no reason why a large export trade should not be built up in this line.

There is noticeable falling off in blanket production of recent years, but not to so marked an extent in Canada as in the United States, and of this the Textile Manufacturers Journal says:—"It represents a curious phase of the changes which are being made constantly in the textile industry. There are more people in the country to day than ever before, the winter's cold is just as keen, and there seems to be just as much need for protection as ever. Yet the blanket industry is on the wane, fewer goods being produced. The furnace and steam heat have to an extent rendered the blanket useless. The cotton blanket, an in

## Editorial.

### CANADIAN FLEECE WOOL.

There is still a large quantity of last season's clip on the Canadian market, there being probably 400,000 lbs. in Toronto alone, none of which was bought at less than 16 cents. New fleece wool is coming in freely, and though dealers entered the market first at 14 cents a lb., they are not anxious to buy, and it is not unlikely that growers and country merchants will carry part of the clip well into the season. In the country districts local causes have slightly advanced prices, and general store-keepers and some manufacturers have paid 16 cents a lb. in some cases. The

novation of the past ten years, has made serious inroads in the market as against the all-wool fabrics among a certain class of people. Another class of people has to an extent discarded the wool fabric for the eider-down quilt, which gives warmth and comfort without weight. In these factors may be found the true causes for the falling off in demand for blankets. We will always have in Canada a large demand for coarse grey blankets for the lumber shanty, the mining camp and the sportsman, for with our vast stretches of forest and mining lands the men who follow these occupations will always be a large class. Indeed a great industry may be supported in Canada by the supplying of miners' camps alone, because this is beyond question to be one of the greatest mining countries of the world.

### THE LONDON WOOL SALES.

The fourth series of the wool sales opened June 27th with a large attendance. The auctions of colonial wools opened with the usual attendance of buyers, the competition being very fair. The selection offered was poor. Merinos are 3 to 5 per cent. higher than last auction closing rates, while low crossbreds are 7 to 10 per cent. lower. The bidding for crossbreds was brisk, with the home trade showing an unusually strong desire for this grade. A small selection of merino greasies showed animation, and sold 5½ to 6 per cent. higher, with the Continent securing the bulk. A small supply of Cape of Good Hope and Natal met with a strong demand, and greasy snow whites improved five per cent. The offerings of the first day numbered 12,152 bales. Following is the sale in detail:—New South Wales 700 bales; scoured, 1s. 3d. to 1s. 7½d.; greasy, 4½d. to 1s. 1½d. Queensland—1,300 bales; greasy, 10d. to 1s. 1d. Victoria—900 bales; scoured, 9d. to 1s. 11½d.; greasy, 5½d. to 11½d. South Australia—31 bales; scoured, 10½d. to 1s. 7½d. Tasmania—400 bales; greasy, 5d. to 1s. New Zealand—800 bales; scoured, 5½d. to 1s. 6½d.; greasy, 4½d. to 11d. Cape of Good Hope and Natal—600 bales; scoured, 11d. to 2s. 1½d.; greasy, 7½d. to 11d.

There was a full attendance of buyers at the second day's sales. Fine crossbreds and merinos were in firm demand. German representatives operated more freely, dividing merinos equally with the home trade. The Continental buyers were eager bidders for lock and pieces at high prices. A large quantity of low, medium crossbreds realized 5 to 7½ per cent. below the May series. The number of bales offered aggregated 12,938. The sales of the day were 12,938 bales. Throughout the sales fine crossbreds, merinos and scoureds were in demand and in many cases extreme prices have been obtained and in others lots withdrawn. On July 13th these wools were fully 15 per cent. dearer than at last series. The number of bales offered on that day were 13,258. The attendance was good. A good selection of New South Wales greasy and scoured were secured by France and Germany. A heavy supply of medium and low grade crossbreds sold at better prices. Slipes were in spirited demand, and lambs brought hardening rates. Cape of Good Hope and Natal medium

greasies were largely withdrawn. The sale in detail is as follows:—New South Wales—1,400 bales; scoured, 11½d. to 1s. 10d.; greasy, 7d. to 1s. ½d. Queensland—1,700 bales, scoured, 1s. 6d. to 1s. 10½d.; greasy, 9½d. to 1s. 1d. Victoria—1,400 bales; greasy, 5d. to 1s. ½d. Tasmania—100 bales; greasy, 8½d. to 11d. New Zealand—750 bales; scoured, 7d. to 1s. 9½d.; greasy, 5d. to 1s. 1½d. Cape of Good Hope and Natal—900 bales; scoured, 1s. to 2s; greasy, 7½d. to 11d. Buenos Ayres—100 bales; greasy, 5d. to 8½d.

The series is scheduled to close July 18th, and the fifth series will open Sept. 19th, when prices will be probably still higher in fine wools, as there is every indication of an increased shortage.

### NOVELTY IN TEXTILES.

Novelty of style is as important in textiles as in all manufactured productions in which the decorative arts are practiced, having its commercial value in rendering the fabric more salable and its intrinsic value by its relation to the standard of modern loom work. Yet some kinds of novelty are more undesirable than ordinariness, such as eccentricity, which may be defined as the outgrowth of strained effort to invent marketable newness. Originality of idea is a necessary living quality in all purely artistic novelties, but it is natural, and not forced, as in eccentric work, in which the absence of unity of parts and spontaneity of structure or design co-exist with crudeness and incongruity. It is sometimes observed, says the Textile Recorder, that if the designer would only invent patterns characterized by beauty of form and composition, they would command a market. There is a dearth of original and meritorious work, but a profusion of the common and indifferent kind; yet the producer is only partially responsible for the results.

In all fabrics made for apparel the insatiable demand for novelty is a tyrannizing and coercive influence, diminishing the success of those who fail to supply it. Extraneous but keenly operative forces more or less affect progress in designing and manufacturing. The tastes of the people are one of these forces and fashion another. So long as the customer asks for a particular class of fabric, the manufacturer must perforce produce it; so long as the fickle changes of fashion reign paramount, the designer is not a free agent in his inventions; and, therefore, in some degree is not responsible for the styles of textures manufactured. But not wholly so; for, while he may comply in part with the arbitrary conditions imposed, his work, so far as it is superior to accepted ideals, is sure to be appreciated, and, moreover, highly remunerative.

Refined feeling for designs correct in artistic color qualities is far from universal, and as it is a quality of the mind due to culture, the process of growth is necessarily tardy. The judgment of the ordinary purchaser is not so sensitive that he weighs for a moment the relative artistic merits of the fabric he selects. He is

chiefly influenced by what appears striking, new and fashionable—terms which may have absolutely no relation to beauty and excellence of pattern and fabric. It is, however, satisfactory that the taste for loudness in woven design is diminishing with the advance of education. The fabrics worn by the last generation and the cut of the garments are so extraordinary as to be positively vulgar in aspect. As a quieter and more cultured taste prevails, the invention of neater and more elegant cloths and loom effects will be fostered.

One of the results of the improved taste in textiles is the increased manufacture of fabrics in which the patterns are minute in character and choicely colored. When these are en vogue, the difficulties of the designer are manifold; for the resources of the loom are reduced to a minimum, and color combinations have to be chiefly relied upon. Fabrics elaborate in structure and rich in those elements due to interweaving are not helpful to, but even destructive of, the beauties of the coloring. Simplicity in weave design runs parallel with ingenious color compounds, the one being complementary to the other. Recently the demand for patterns obtained by blending fancy shades has extended into every branch of wearable fabrics. Formerly there existed a well-defined line of demarcation between materials for men's and women's garments; now-a-days both wear similar materials; the alpacas and textures of that species having been displaced by woolen and worsted fabrics soft in tone of color and neat in design. No wonder that the dress centres of manufacture should be phenomenally depressed, and depart from their hereditary interests, entering into competition with other localities which have for generations been the seats of the heavy classes of textiles. That the tweed manufacturers of the West Riding of Yorkshire, Scotland, and the west of England should become ambitious rivals of Bradford in the production of costume and mantle cloths has caused an overlapping of what were frequently recognized to be distinct departments of the weaving industry. Many of the old landmarks are thus being removed. Wherever the manufacturer may be located, he may produce dress and mantle, coating, trousering and suiting cloths. This is, undoubtedly, a satisfactory sign of the times, denoting powers of adaptation and a range of knowledge of woven work generally not characteristic of the older schools of manufacturers.

The difficulty of the task of the originators of textile novelties is intensified by the necessity of devising new patterns and cloths which will comply with prescribed climatic, national, and local conditions. The more knowledge of and sympathy with the tastes of the purchasing community a maker possesses the better is he equipped for gauging its requirements. How is it feasible to command the taste of a people of whose national and indigenous feeling for color and ornament we have no accurate information? Especially is it necessary in endeavoring to supply Eastern markets,

where caste and custom are of religious origin, and revered accordingly, that the manufacturer should have the fullest knowledge of the taste and qualities of mind he seeks to gratify.

Our insular position and phenomenal industrial success are not calculated to assist us in appreciating the idiosyncrasies of the foreigner. Our geographical isolation is, in reality, a mixed advantage, being at once the source of the strong individuality of the people and of the apathy with which they respond to new notions which have had birth abroad and esteem the customs and sentiments prevalent in other countries. There still exists among artisans and employers some remnants of the belief that what is of British origin is necessarily superior to that of foreign production. A closer intimacy with the national traits of those whose wants it is the object of the home industrial communities to supply would effectually disperse this obstinate creed, and create instead a more enlightened apprehension of the source and quality of foreign tastes in design and color.

In the method the German pursues in establishing a new market there is ample evidence of ready willingness to adapt his natural and trained ideas to such models as have become standards in the country to which German manufactures are to be exported. There is an absence of that officious desire which too frequently forms part of the pioneer of British enterprise abroad, of compelling the buyer to see eye to eye with the producer and seller, for, on the contrary, the German is prepared to modify his cloths to any extent if by so doing he can effect business transactions. This he usually accomplishes without any real suppression of his personal tastes and prejudices.

The whole art of commercial success in designing consists in producing what is fitting, or, in other words, those textures and styles of pattern for which the buyer has naturally and by education and local influences an appreciative faculty; and neither British nor any other country's commercial interests can be permanently expanded unless the manufacturer is alive to the local feeling and natural peculiarities of the people whose textile needs he endeavors to supply.

#### THE GROWTH AND PREPARATION OF FLAX.\*

Although the growth of the flax plant and its preparation for market are not, strictly speaking, within the province of the flax spinner, it being the farmer who grows the flax, and the scutcher who prepares the straw for market, yet a short sketch of the method of cultivation and the causes which determine the spinning quality of the fiber, needs no apology, since even a superficial knowledge of this subject is of great assistance to the practical flax spinner in thoroughly understanding the material with which he has to work. The flax plant con-

\*Reprinted from the Textile Recorder.

sists of a round stalk which usually grows from two to four feet in length, and which branches towards its upper extremity. The stem of the plant is made up of a core or boon of woody matter, surrounding which are the filaments from which yarns and thread are spun. The outside of the stem is covered by a thin skin like varnish, which consists of a substance called pectose. The same substance binds the fiber to the boon, its dissolution being the object of the retting process. In order that flax may be successfully grown, three things are necessary, viz., a suitable climate, a favorable soil, and good seed. Ireland and Belgium have the first of these, hence the value of Irish and Flemish flaxes for spinning purposes. As regards soil, a loamy or sandy soil, abounding in vegetable matter, is the most advantageous, as it enables a level seed bed to be prepared, and thus tends to produce flax of an equal length and quality.

On a clay land the plant grows too strong and branchy, yielding coarse fiber. On gravel the plant is stunted in growth. Riga and Dutch seed are most sown, the latter being more suitable for heavy land or after a green crop. Dutch seed, as a rule, produces a finer fiber than Riga. On ordinary lands, Riga generally gives the best yield. The farmer should be most particular as to the quality of his seed. A good seed is heavy, plump, and glossy, while a poor seed is small, light, and dry. As a general rule farmers rely on their judgment as to the quality of the seed; however, the well-known brands of reliable importers may generally be relied upon. The choice of a suitable field is the first point, however. If the land has never been under flax before, the farmer should select a field in which potatoes or corn were grown the previous year, as this land may be easily got into a sufficiently fine tilth. If he is in the habit of growing flax, a rotation of crops should be adopted, so that flax may not be repeated in the same land till after a lapse of from seven to ten years.

If sown in April the flax is usually ready for pulling at the end of July or beginning of August. The pulling should only be entrusted to experienced men and women, as considerable strength of grasp is required to pull the flax up in handfuls by the roots without allowing any of the stems to slip. The maintenance of an even butt or root end is a matter of the utmost moment, as if this point is neglected it adds considerably to the loss in scutching, and renders the flax less valuable to the spinner for the same reason. The pullers then grasp the flax in handfuls near the bolls, and raising it out of the earth, lay each handful down separately upon the ground. Although the seed-bed may have been carefully prepared and the seed well selected, there are always some short stems among the long. On some parts of the Continent the farmers go to the trouble of first pulling the long stems and then the shorter ones,

keeping them separate and steeping in separate dams. This method of procedure, of course, adds both to the value and yield of the fiber. In Ireland the seed is usually removed as soon as the straw is pulled. For this purpose the handfuls of flax are removed to the "rippers," who draw the top ends of the flax through a coarse iron comb or "ripple" made of round iron teeth inserted in a wooden stock. This removes the seed bolls, which fall upon a sheet or into a receptacle placed to receive them. The flax stems are then tied into loose bundles or "beets" of small size, and carted to the steeping dams, which should have been constructed some time previously. They should be cut out of the clay and be neither too broad nor deep. The length is immaterial, but a dam 9 ft. broad, 4 ft. deep, and 50 ft. long will be found about the right size for an average crop off one statute acre. The dam should be perfectly watertight, so that no water can percolate into or leave the dam during the retting process. The water in which the flax is to be steeped should be as soft as possible. Water impregnated with lime or iron is objectionable, especially the former. Commencing at one end of the dam, the beets are placed in rows close together, the root ends down, another row being sometimes placed horizontally on top. The flax is then covered with some convenient material, such as straw, rushes, etc. On top of all, boards should be placed to support the stones, which must then be applied to sink all below the surface. If the weather be favorable fermentation will set in immediately. The flax then commences to rise in the water and will require more stones to keep it submerged. When fermentation subsides the flax will sink in the dam, when some stones must be removed, as it is best to keep the straw floating just beneath the surface of the water. Retting usually occupies about ten days, but the time taken depends so much upon the temperature and quality of the water that after the first few days the flax in steep should be examined daily, and as it approaches completion almost hourly, lest fermentation proceed too far and the fiber be weakened in consequence. Several tests are relied upon by experts to mark a sufficient degree of retting. Among the tests recommended are the following: As the final stage approaches, a greenish slime or "glit" will appear on the flax. When this can be removed from the stems by lightly passing them between the fingers it is time to remove the flax from the water. Another test is to gently bend the middle portion of a stalk over the finger. Should the woody part start up and leave the fiber, fermentation has sufficiently far advanced. The Belgian test consists in separating the fiber from a single stem, catching it about six inches apart, and placing it close to the ear. When gently jerked in this position the expert can tell from the sound if it be sufficiently retted or not. If this is the case, the sound is soft and mellow; otherwise it is sharp and ringing. The proper time having arrived, the flax is thrown from the

dam either by men standing up to their waists in water, or else standing upon planks placed across the dam and using forks. The beets of flax are then deposited upon the field selected for grassing. Well-cropped pasture land is best adapted for this purpose, all tall weeds having been first cut down. The beets are then opened and spread out lightly in rows across the field, the rows slightly overlapping lest the flax be tossed by high winds. In a day or two the fiber will contract and leave the boon, which soon becomes dry and brittle. The flax is then ready for lifting, for which operation a dry day is essential, as the straw must be quite dry. Tied in beets it can be stoked in the fields or stacked in a loft prior to removal to the scutch mill. Before following the flax to the mill it will be interesting and profitable to examine the particulars in which the Continental methods of treating the flax straw differ from those practiced by the Irish farmer. Various prominent gentlemen connected with the Irish linen trade have of late years interested themselves in trying to improve the quality of native flax by promoting the adoption of Belgian methods. The Irish farmer prepares his land and sows his seed in a very similar manner to his Flemish brother, but he seldom or never takes the same amount of trouble over manuring or weeding. In Ireland, again, farmers nearly always steep their flax immediately after pulling instead of drying the straw and storing it until the following year, as the Belgians do. Even when practiced in Ireland the latter method has been proved to give fiber of superior quality to the former, yet it has been adopted to a very small extent by the Irish farmer, probably because he has no capital, and cannot afford to keep his flax for a year, depending upon the money it will fetch in the market to pay his rent. Double steeping is another feature of the Flemish method not practiced to any extent in Ireland. It consists in only allowing fermentation to proceed a certain length in the first instance, then withdrawing the flax from the water and drying it, and then again steeping until the process is complete. Except in the neighborhood of the river Lys, Belgian flax is steeped in dams of stagnant water, as in Ireland. Belgian flax steeped in this way is called, on account of its blue or blay color, blue flax, to distinguish it from the bright yellow or cream-colored flax produced by the Courtrai method of steeping now to be described. The peculiar properties of the water of the river Lys, in which flax is steeped for many miles on both sides of Courtrai, and to which the superior spinning quality and clear color of the fiber called Courtrai, steeped in it, are due, remains undiscovered despite repeated chemical researches. The excellent results obtained from the Courtrai water are, in the writer's opinion, to be traced rather to the slow and gentle current of the river, the softness of its waters, due in part to the amount of vegetable and nitrogenous matter dissolved out by the water

as it slowly percolates through miles of steeping flax. He does not believe that there is any particular virtue in the waters of the river Lys, and attributes the successful results obtained, firstly, to the softness of the water and its gentle current; secondly, to the large quantities of flax steeped in the river at the same time, putting forth in support of this statement the well-known fact that of the portion of the river in the neighborhood of Courtrai, the upper reaches do not give such successful results as the centre portion, because the water is poorer. The fact that the retting of the lower reaches is also inferior is accounted for by the fact that the water becomes saturated, so to speak, and loses in fermentative power.

(To be continued),

#### THE MERCERIZING PROCESS IN DISPUTE.

A great deal of interest is manifested at the present time in the process of mercerizing cotton. While manufacturers and dealers have given the matter considerable attention for the last two or three years, the interest in the process has been enhanced to a great extent by the contention which has arisen. The process of mercerizing was discovered and introduced by John Mercer in 1850, but the process in use to-day is entirely different from the original invention of Mercer. His plan comprehended the shrinking of the fibers, while the process of mercerization, as in vogue to-day, is for the purpose of producing a silky luster upon the fibers and the cloth. The process has reached such a stage that the product thereof can with difficulty be distinguished from silk. Numerous and varied designs are produced, and the mercerizing process is destined to play an important part in the cotton manufacturing business. While it is yet in its infancy, it has already made rapid strides forward. In 1898 William Thomas Gale, of the Aberfoyle Manufacturing Company, Chester, Pa., and James Roland Hope, and Thomas McConnell, Philadelphia, took out letters patent for mercerizing machinery and entered into the mercerizing business on an extensive scale at the plant of the Aberfoyle Company. At that time the general opinion existed that the process was open to anyone who desired to enter the field, providing no infringements were made upon the machines in use. That opinion exists to-day with the majority of those in the business. But the Aberfoyle people a short time ago discovered that Richard Thomas and Emmanuel Prevost had taken patents on the process of mercerizing under tension in the United States, and the processes generally used here were likely to conflict with these patents. Consequently Mr. Gale and others bought the Thomas and Prevost patents in the United States and set about to form a company to control the United States market. A short time ago the indefinite announcement was given out that the American Mercerized Cotton Yarn Company



had been incorporated under the laws of New Jersey, but no capital stock or organization was given, excepting that it controlled the Thomas and Prevost patents. It was learned subsequently that a number of mercerizers had agreed to pay royalties to the company for the privilege of using the process, among others the American Thread Company. It has been stated that a demand was made upon several companies using the process for royalties, but that many denied the right of the company to assess royalties. It is the intention of the Mercerized Yarn Corporation to proceed against all mercerizers for infringement of the patents issued to Thomas and Prevost. A similar contest is on in England, the Yorkshire Dyers' Association claiming that it controls the patents of Dr. Schreener, his process being the fundamental principle of the mercerizing process generally in vogue in England, according to the association. But individual buyers are indisposed to look at matters in this way, and will contest the rights of the association. In order to learn the status of the American Mercerized Cotton Yarn Company's contention, the Textile Manufacturers' Journal, New York, has investigated the various patents, and we quote from the results they have obtained: Richard Thomas and Emmanuel Prevost, Crefeld, Germany, filed application, June 4th, 1896, for letters patent for the "Process of Mercerizing Under Tension," to cover the patents issued in Germany, France, Austria, England and Belgium. The application was placed on file as Serial No. 594,306, and subsequently the patent was granted March 15th, 1898, being known as No. 600,826. After reviewing the fact that "vegetable fibers exposed to strong acids and strong alkaline lyes are chemically changed," etc., which are among the features of mercerizing, Thomas and Prevost assert:

Everywhere is attention called to the great injury of shrinking. The Lyons firm, Garmer & Fr. Voland, employs the property of vegetable fiber becoming shorter by mercerizing to produce in webs peculiar embossed effects. These webs consist of silk and have (mostly in the chain) single cotton threads at fixed distances. If the webs are now treated with the fluids named, the cotton becomes shorter and the silk, which keeps its original length, is laid in folds. Thus the most diversified pattern may be produced. This application of mercerizing (taking advantage of the shrinking of the cotton) has been patented by Garmer & Fr. Voland Heymann, in Muhlhausen, has also patented a process of mercerizing. It also employs the peculiarity of shrinking to produce effects in webs entirely of cotton.

After great effort the avoidance of contraction has by my invention been attained either by preventing the shrinking or by stretching according to a peculiar process. The mercerized fiber, as web or yarn, is thus, with its many valuable properties, made useful in industry and to the trade.

First. The vegetable fiber in a rope form or as web in a tense condition is exposed to the action of strong lyes or acids, and after reaction (which can be detected by its parchment appearance) is washed out, retaining the tension until the interior tensions of the fiber have relaxed. If the web or yarn is then taken from the stretching apparatus, it can be further treated without fear of shrinkage.

Second. Instead of a peculiar stretching apparatus, the fiber may be put on spools or bobbins or similar apparatus. When the threads are stretched in order to expose them to the action of strong alkaline lyes or acids, a special apparatus should be used to cause the preparation liquids and the water for washing to pass through.

Third. The vegetable fiber in web, yarn, or other form may be treated by first subjecting it to a sufficient stretching action to extend the material beyond its original dimensions, then treating the stretched fibrous material with the mercerizing fluid until the material assumes a parchment-like appearance, next subjecting the material to a further stretching action while it is under the action of the mercerizing fluid and continuing the stretching until a peculiar silky lustre appears, and then finally washing or otherwise removing the mercerizing fluid from the fibrous material. The third process is a modification or extension of the process mentioned in No. 1.

By our improved process the very great capacity for expansion of the vegetable fibers while wet with the lye is employed to stretch them to the original length, and often beyond. If the fibers were washed with water before stretching, then it would not be possible to stretch them to their original length. They would merely tear after slight stretching.

After giving in detail the kinds of alkaline lyes to use, and commenting upon the attractiveness and value of mercerized cotton, the inventors in the specifications present the following claims:

1. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting the material to stretching, mercerizing it, maintaining the tension during the operation of mercerizing, and, when such operation is completed, relaxing the tension, as set forth.

2. The herein-described process of treating tightly-spun fibered vegetable fiber for giving it a silky luster and feel, which consists in subjecting the material to a stretching action, next subjecting the tightly-stretched material to the action of a mercerizing fluid until it assumes a parchment-like appearance, and finally washing or otherwise removing the mercerizing fluid, maintaining the tension upon the whole until the mercerizing fluid is removed, substantially as and for the purpose set forth.

3. The herein-described process of treating vegetable fibers, which consists in first stretching, then subjecting the stretched material to the action of a mercerizing fluid until it assumes a parchment like appearance, next subjecting the material to a greater tension while under the action of the mercerizing fluid until a peculiar silky-luster appears, maintaining the tension while washing or otherwise removing the mercerizing fluid from the material, substantially as and for the purpose set forth.

In a later application, filed January 22nd, 1897, known as Serial No. 620,244, the applicants describe certain modifications and improvements in treating vegetable fibers or fabrics for dyeing process. "The novelty claimed therein over the previous application consists in subjecting the vegetable fiber to the action of the mercerizing fluid before it is stretched, and while it is being acted upon by the mercerizing fluid, subjecting it to a sufficient stretching action to elongate the material to produce the silky luster."

In presenting their claims in the second application papers, Thomas and Prevost state:

When cotton or similar vegetable fibrous material—such as thread, string, cloth, or other fabric—is treated with a strong solution of alkali acid, chloride of zinc, or equivalent material,

and the chemicals used are then washed away or rendered inoperative by neutralization, the fibrous material attains considerably greater strength, a greater holding power for dyes, and a more glossy appearance. This process has found little application in the textile industry because the fibrous material is thereby shrunk to the extent of twenty to twenty-five per cent. Short-fiber and loose-spun cotton can, during mercerizing, be prevented from shrinking by clamping it in the stretching machines usually found in the dyeing and finishing works, or, after it has shrunk, can be brought back to the original length by subsequent stretching; but in these operations the individual fibers of which the thread, yarn, cloth, or the fabric consists are not themselves extended, but slip on one another, and thus change only their relative positions, but not their length or quality. Thus the glossy appearance which the loose mercerized cotton already possesses remains unchanged by such stretching.

We have attempted to also stretch long-fiber and hard-spun cotton during mercerizing. For this purpose the stretching machines usually found in dyeing and finishing works are wholly insufficient, and extra powerful machines had to be constructed. In this powerful stretching of long-fibered and hard-spun cotton occurred a new, surprising and industrially valuable result, namely, that the threads, yarn, cloth and other fabric take on a brilliant silk-like luster. This surprising result is explained thereby, that in this case there no longer occurs a relative slipping of the individual fibers in the thread, because the friction of one another of the long and tightly-twisted fibers is too great to allow such slipping, but that the individual fibers, in consequence of the powerful stretching of the goods, are themselves elongated. This development of a silky-luster in cotton by stretching of the individual fibers we claim as our discovery.

The following claims for patent enter into this application, letters patent having been granted thereon March 15th, 1898, being known as No. 600,827:

1. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting the fibers to the action of a mercerizing fluid, without tension, and then during the mercerizing action, that is after the fiber is wetted by the mercerizing fluid and before the removal or neutralization of the said fluid, subjecting the material to a stretching action sufficient to produce a silky luster and feel and prevent shrinkage, substantially as and for the purpose set forth.

2. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting tightly-spun long-fibered vegetable fiber to the action of a mercerizing fluid, without tension at the outset, and then subjecting said tightly-spun fiber to such a stretching action that a silky luster and feel are produced, said stretching action taking place after the fibers are wetted by the mercerizing fluid and before the removal or neutralization of the said fluid, substantially as and for the purpose set forth.

3. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting it to the primary action of a mercerizing fluid, without tension, until it assumes a parchment-like appearance, then subjecting it to a sufficient stretching action to prevent its ultimate shrinkage while it is exposed to the further action of the mercerizing fluid, and finally neutralizing or removing the mercerizing fluid from the fiber while it is kept stretched, whereby the material will have a silky luster and feel, substantially as set forth.

4. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting it to the action of a mercerizing fluid, without tension, until it assumes a parchment-like appearance, incidentally allowing the usual shrinkage, then stretching it while exposed to the mercerizing fluid until it is at least its original length, and finally

neutralizing or washing the mercerizing fluid from the stretched material substantially as and for the purpose set forth.

5. The improvement in the process of mercerizing vegetable fibers woven or mixed with animal fiber, which consists in subjecting said mixed material, without tension at the outset, to the action of a mercerizing fluid at a low temperature, such as about zero centigrade, and then subjecting said material to a stretching action while it is undergoing the mercerizing operation, the said fluid being of such a degree of dilution as to be without mercerizing effect upon the vegetable fibers at ordinary temperature and without deleterious action upon the animal fibers, as set forth.

6. The herein-described process of treating vegetable fiber for giving it a silky luster and feel, which consists in subjecting the material to the action of a mercerizing fluid, without tension at the outset, then subjecting said material to a stretching action, and continuing and increasing the stretching of the material while it is exposed to the action of the mercerizing fluid until a silky luster is produced thereon, and finally neutralizing by washing it to remove the mercerizing fluid, substantially as set forth.

#### WILL NOT GIVE IN.

Upon these claims and the letters patent granted thereon, the American Mercerizing Cotton Yarn Company bases its position of monopolizing the process of mercerizing in this country. However, all of the mercerizers do not intend to give in without a fight, and the position taken by them can be summed up best by printing the following letter received from a prominent mill using the mercerizing process:

We are not able to throw any light on the subject you write about in connection with a proposed mercerized yarn combination. What the yarn people are doing we do not know. We do know, however, that we have been mercerizing cloth in this establishment for the market for more than two years. We have been threatened, in common with the ——— Bleachery and the ——— Company, but have gone on with our work in that line, independent of all claims of patentees, licensees, and other persons, who are trying to establish exclusive rights.

We have investigated to our own satisfaction the status of the matter, and do not believe any patent can stand on a mercerizing process. The chances are better for some appliances, machinery used in the process, but even here we doubt if the formation is strong enough for control.

Your opinion that "the process is an open one" is shared by finishers generally. And you are probably aware that in England and in Germany that opinion is fortified by a refusal to issue a patent for the well-known processes of mercerization."

The other side of the matter is stated in the following letter received from one of the foremost mercerizers, who is interested in the syndicate:

Your letter received and contents carefully noted. We have also read the article in *The Journal*, together with the editorial remarks. We were as much surprised as you could have been when we learned that the Thomas and Prevost patent was issued in the United States. As a matter of business, we investigated very carefully the whole subject, and from our investigation we are bound to believe that the patent is a strong one, and its validity will be established through the courts.

We can better express our confidence in this direction by saying that we have already agreed to pay royalty upon all of the yarn we mercerize and have mercerized since last November. You will understand, of course, that we would not have done this had we not become convinced that the claims under the patent are valid ones.

We were the first ones in this country to put this mercerized cotton on the market. From all the information we had at the time we believed the process was an open one, but upon investigation we find that as early as 1896 Thomas and Prevost had applied for patents covering the process, both for yarns and cotton goods, and the patent was allowed in March, 1898. Since that time negotiations have been going on and investigations made, the outcome of which has been the formation of the American Mercerizing Cotton Yarn Company, which company has paid a large sum for the rights to use in the United States.

We have been familiar with all of the steps leading up to the organization of this company and are interested in the formation of it. The purpose of the company is to control the product and license the manufacturers thereof. The final details of the organization are not yet completed, but the company expects to be fully organized on or before July 1.

#### • A CONTEMPORANEOUS VIEW.

Referring to the process of mercerization, Dyer and Calico Printer in a recent issue said:

The first proper start that mercerization obtained as a commercial process was the taking out of a patent by P. and C. Deponilly of Paris, and C. Garnier and F. Voland, of Lyons, at the German office, June 14, 1884, No. 30,066, being supplemented by No. 37,658 of December 13, 1885. These refer chiefly to the product of crepe by mercerization, as do the German Patent No. 83,314 (1895), of Heilmann & Co., Mulhausen, and No. 89,977 (1895), of the Kattun-Manufaktur Heidenheim, and Binz and Boral's English patent of 1897 (No. 29,504). We now come to the patents of Thomas and Prevost, the German patent No. 85,564 of March 24, 1895, the French patent No. 246,244 of March 30, 1895, and the English patent No. 18,040 of September 26, 1895. These patents deal with the mercerization of fibers in a stretched state. The specifications allude to the increased affinity for dye which cotton acquires by mercerization, and the advantage that can be taken of the fact in parti-colored dyeing of mixed fabrics. Formerly, such wares were dyed in the hank or the cotton was first dyed a fast black, was woven with the raw silk, and then put into a fresh bath in order to dye the silk. If a fabric containing silk and mercerized cotton is dyed in a weak bath, the former will only be lightly colored, but the much greater affinity for the dyestuff possessed by the cotton will cause the bath to give it a far deeper shade. In this way, and also by weaving together mercerized and unmercerized cotton, many different effects can be produced. The patentees proceed to point out that all these advantages are made of no avail by the shrinkage of the mercerized stuff, and propose to prevent that by keeping the fabric or yarn stretched during mercerization at a sufficient tension to prevent any contraction, keeping up the stretching until the subsequent washing out of the lye or acid has been completed. When this is done, the mercerized material can be used without any fear of subsequent shrinkage setting in, and it has the same affinity for dyes as if it had been allowed to contract.

The English patent was contested by H. A. Lowe, on the ground of the priority of his patent (No. 4,452) of March 15, 1890. Lowe's specification recites that it is concerned with improvements in the treatment of cotton or linen, whereby the vegetable fiber is improved in luster, in strength and in power of combining with dyes. Deponilly's patent for producing crepon effect was not concerned with the production of the color. It had no practical effect on the industry of mercerization, and was indeed invalid, having been anticipated by Mercer himself. A distinct step in that particular direction was taken by a process patented by W. E. Kay, and the Thornelbank Company, Limited, of Glasgow (1894, No. 19,388). This was based on the discovery that a gum resist was not only able to reserve from

mercerization, but also from substantive dyes. Hence the "immersion" method of producing colored crepons. A later patent of the same patentees (1894, No. 20,308) marks a yet further step in advance in colored crepons, attained by introducing a discharge or resisting agent into the gum resist. This is especially used for colored crepon effects on aniline black grounds, and generally all the styles in which a white or colored crepon discharge effect is produced on a black or colored ground. The cotton fabric is treated, all over or partly, with undeveloped aniline black solution or with indigo blue or other color. It is then printed with resist, combined with a discharge-suitable to the particular color, or in resist, discharge and color. The steamed fabric is then mercerized with or without dye in the alkali bath.

F. A. Bernhardt's process (English patent, 1896, No. 16,840) gives nearly the same result as regards luster as mercerizing with stretching. The stretching is effected by passing the fabric over rollers, and the mercerizing by making one of them hollow and perforated, so that alkaline lye pumped into its inside finds its way to the fabric passing over the cylinder. We now come to the first of Dr. Adolf Liebmann's patents, of Manchester, who sought to supply the deficiency above alluded to in the patents of Lowe and of Thomas and Prevost, by taking out English patent No. 19,633 of September 5, 1896. In this Sea Island and Egyptian cotton are specifically mentioned as being the only kinds which will give a silky luster after mercerization, and it is insisted on that yarns to be mercerized must be lightly twisted, and that fabrics to be mercerized must be made solely from such yarn; 30 degrees Be. is given as the strength of soda lye to be used.

In the meantime Thomas and Prevost obtained a complementary German patent (September 4, 1895). This protects stretching after mercerization, washing out the lye during the stretching and keeping up the stretching until the tension of the fibers yields. The patentees speak of a stronger stretching force than previously used, but Lowe directed the use of sufficient force to prevent entirely the shrinkage of the cotton.

#### OTHER PROCESSES.

Recently several patents covering various phases of the process have been granted in England. Ferdinand Mommer, Barmen, Germany, January 8th, 1899, as follows:

Cotton goods and the like are treated in order to produce a silky gloss on the surface. The fiber, first treated with caustic soda, is wound on a roller, from which it is passed over suitable rollers and through a stretching device by which it is stretched longitudinally. It is further operated upon by ordinary stentering clips, by which it is stretched transversely. While stretched it is treated with hot water from pipes placed above it. From the stretching device it is passed through a calendering device, consisting of an upper cotton-covered roller and a lower metal roller. From thence it is passed through a series of washing-troughs, containing boiling water, which are in communication with one another by means of inclined pipes. Another trough contains sulphuric acid. At the top of the trough partitions the fabric passes under weighted rollers. From the last washing-trough the fabric is passed through a second calendering device, and is finally wound on a roller.

J. Entwistle, Manchester, February 4th, method of mercerizing yarn:

The improved method of mercerizing consists in subjecting the fibers during the mercerizing process to a rapid alternate stretching and releasing action. It was found by experiment that putting the fibers alternately under tension and releasing them gave a better luster than by the processes at present employed. The hanks may be mounted upon a pair of revolving

rollers, one or both rollers being formed of two, three, or more staves, so that as the rollers revolve the unequal periphery or peripheries exert alternately a rapid stretching and slackening action of the hanks of fibrous material.

H. A. Lowe, Heaton Moor, January 28th:

Yarns and fibers are stretched after the mercerizing, dyeing, bleaching, or other operation by being passed through a number of pairs of rollers, of which the surface speed of each pair is greater than that of the preceding and less than that of the following pair. The material passes subsequently through a number of pairs of rollers rotated at a uniform speed, where washing-water or other liquid may be sprayed on to it as it passes between the rollers. One or more of the rollers may be hollow and perforated to admit washing-water, etc., to the material. Loosely-twisted yarns or loose fibers are carried through the rollers by one or a pair of elastic conveyers or aprons.

W. E. Aykroyd, Manningham, Bradford; W. H. Aykroyd and H. E. Aykroyd, March 20th:

The essential features of the machine consist of any convenient number of pairs of squeezing rollers at the top of the machine, with a similar number of single rollers running parallel at the bottom of the machine. The required pressure for stretching the yarn or fibrous material is obtained by the use of four or more screws fixed vertically, in pairs, said screws being actuated by worm-wheels, worms, shaft and hand or power driven wheels, or other similar devices.

W. Hall, Newton Heath, Manchester, March 11th:

Relates to an improved appliance for treating hanks of cotton while mercerizing, by which they are maintained in a stretched condition during the process without removing the yarn from the frame. It consists essentially of a frame fitted with two or more rollers placed at some distance apart, over which the hanks can be placed and stretched, the frame being mounted by suitable runners upon a rail placed over the liquid containers, and the parts carrying the yarn capable of being lowered and raised to immerse the yarn in and remove it from the liquor. In carrying out the invention, a frame or cradle is constructed to carry the yarn mounted upon a rail or rails so as to be movable thereon. The rails are placed at the back, and at the upper back edge the cradle is provided with runners or pulleys, two on horizontal pivots to rest on the top edge of the rail, and two on vertical pivots which engage the rail at the back to maintain its position on the rail. At the lower edge the cradle is provided with other runners on vertical pivots, which bear horizontally against a second rail to maintain the cradle in its upright position. The cradle can travel backward or forward on the rails. The rails may be placed in a straight line extending any distance, but are preferably curved in circular or elliptical form to form continuous rails, so that a number of cradles may follow one another in one direction. Below the cradles are placed a number of vessels to contain the mercerizing or other liquor with which the yarn is to be treated. The cradles are each formed with sides extending outwards from the rails, which carry bearings for a number of rollers, preferably three, over which the yarn is passed. The bearings of one (or more) of these rollers are fitted with screws, by which the roller can be moved to and fro to tighten or stretch the yarn when placed thereon. The bearings of the lower or bottom roller may be made to swivel to facilitate the putting on or taking off of the yarn. Part of the frame or cradle is fitted with slides to move up and down, and is suspended by a chain passing over a pulley or pulleys, and connected to a lever or handle by which it is raised and lowered to bring the material into the vat or receptacle containing the liquor, and to remove it therefrom when desired. The rollers over which the yarn or material is placed are rotated by a handle to bring every part of the material into

the liquor. Two, three, or more vats or containers for the treating liquors are placed below the cradles or frames, and the yarn is successively brought to these as the appliance is moved along the rails.

Ernest Grether & Co., Manchester, have placed on the English market "Cohnen's Patent Revolver Automatic Hank Mercerizing Machine," and C. A. Gruschwitz's piece mercerizing machine. Mr. Cohnen claims that he has adopted successfully in his hank mercerizing machine the same system as is in use in his hank sizing process, that is, to mercerize, stretch and wash the yarn automatically at one operation. The machine consists of a massive cast-iron frame, carrying a driving shaft and small counter-shaft. The driving pulley is not fast to the shaft, but runs on a sleeve, on to which is cast a sprocket wheel, driving an endless chain, which in its turn drives the counter-shaft, which carries a worm, and at its other extremity another sprocket wheel, driving a second endless chain, whose purpose is to cause five of the six pairs of rollers carrying the yarn to revolve continuously.

#### FIXING UNREDUCED INDIGO.

A method for fixing unreduced indigo upon cotton has recently been patented in England, which provides for the incorporation of the finely ground indigo with an oil and then printing the mixture on the goods which are then placed in a steamer and subjected to a pressure of 10 to 15 pounds for 1½ hours. The steamed goods are then well washed with soap to remove the oil and such thickening as may have been added, leaving the goods of a blue-gray color, which by a second steaming, after being washed, causes the shade to be much more permanent. The theory advanced for this novel method of fixing indigo is that during the steaming the finely ground indigo is dissolved by the oil at the temperature of the steaming, which is then absorbed by the fibers, and upon coming out into the cooler atmosphere, loses its solubility and consequently becomes permanently lodged in the fiber substance. This view, remarks Textile Colorist, is probably the correct one, for the subsequent soaping is said not to remove any of the deposited indigo.

#### THE ANALYSIS OF CLOTH.

Most large firms engaged in the weaving of fancies have a staff of experts or designers, whose duty it is to originate new features of design or cloth construction that will at once satisfy some whim or caprice of fashion and obtain orders. But these designers are not wholly expected to be original in their ideas, says a writer in The Cotton Factory Times, but must also have the faculty of picking other original designers' brains, by closely studying and analyzing their productions, and reproducing them or cloths somewhat similar. This analysis of cloth is so common that most, if not all, firms engaged in fancy weaving resort to it, and, except when the original cloths are registered, little or nothing is said. Practical analysis forms one of the subjects in the curriculum of most, if not all, technical weaving classes, though, on account of the somewhat meagre results of the time spent in dissecting a piece of cloth, this analysis is generally expected to be done at home, or, anyhow, not in school hours. A great deal of time, effort and patience are required in order to produce very little, though with practice the work becomes easier and the results more quickly apparent. The piece of cloth to be dissected, if in the gray or bleached, should be placed upon something black, so that the weave of the

ends and picks can be more easily seen. If the cloth is black or of any dark color it should be placed upon anything white. The analyst must be provided with a waling or magnifying glass; one with a 1-inch square hole in the foot is the best, though not essential. The student or analyst should also have two needles with which to unravel the cloth, or separate the ends and picks. The student then selects a certain end and pick from which to commence the design, choosing somewhat prominent ones. One pick is taken at a time, and its intersecting with warp threads carefully noted and transferred to point paper; if the nearest pick of the cloth is being examined, its weave should be indicated upon the nearest row on the design paper.

It is seldom the case that it is necessary for more than one repeat of the pattern to be analyzed, and the ascertaining of the number of the ends and picks should be one of the first aims of the operator. This can be easily accomplished by noticing in the cloth where the corresponding end and pick in the next pattern or repeat are and counting the number of ends and picks. It is immaterial whether the raised ends or picks are dotted down on the design paper, so that it is understood by the card cutter or gaiter. The general rule is that if the pattern has more ends than picks raised, picks should be marked, and vice versa, but this is not necessary, and designers and teachers have no fixed rule. It ought, however, to be stated on the design paper whether marks represent ends up or welt up. This operation of dotting down is often somewhat difficult when one person both analyzes and dots down, as he sometimes may lose his place. The work is much easier and more expeditiously performed when one person picks out the pattern and reads it out while another marks it on the point paper. A practiced analyst does not need in every case to proceed by the above method, but will be able to give a very exact design from merely a close inspection of the fabric, if the design is not too complex. In most cloths the best and easiest way we have seen is to take the picks one by one, but in the case of lenos, gauzes, etc., the best and perhaps the only practicable method is to take each pair of crossing ends, or as many ends as cross together, and mark down their order of crossing on the point paper, this order to be shown on the rows intended for the warp threads. It is much easier to pick the pattern from cotton cloths than from woolens or worsteds, and in many cases it is easier to analyze cotton cloths from the back than from the face. In the case of fancy twills, etc., it is sometimes easy to ascertain the complete pattern after noticing the weave of a few picks. Cloths in which the picks of welt are of a different color to the ends of yarn are also much easier to be dissected than when both yarn and welt are of the same color. It is not usual for large patterns, such as brocades, damasks, etc., to be minutely analyzed, as by the pick and pick method, but after the total number of ends and picks have been found, and the ground weave has been ascertained the figure or pattern can often be copied or altered as desired. The above notes are not given with a view to the encouragement of pilfering of designs, but with the object of encouraging students of weaving to study the construction of fabrics by the aid of what has been done. Care should be taken to find out whether the designs of the analyzed cloths have been registered or not.

#### EARLY CALICO-PRINTING IN LANCASHIRE.

Calico-printing was first established in Lancashire in 1746, by the Claytons, of Ramber Bridge, near Preston. So anxious were the printers a few years afterwards to obviate the difficulty they then experienced in obtaining the cloth, that some of them actually left the more distant districts in which they were living and planted themselves where one of the main requisites for

their trade (water) was afforded only in a very limited supply. The cloth at this time was a calico made of linen warp crossed with a cotton welt, and was called the Blackburn gray. A circle a few miles in extent around Blackburn long afterwards remained the great seat of the print-cloth trade, and that district has, even to the present time, retained a considerable portion of it. Another change in the mode of producing the cloth tended, however, in no small degree to spread the trade over a wider district. This was the introduction of the power loom, which has now completely superseded (except, it may be, in the extremely low and light fabrics, and then to a very small extent) the hand-loom weaving, and which in its infancy the manufacturers of the Blackburn district dared not introduce for fear of outrage by the workmen. It was brought into successful operation in Stockport and that neighborhood, and more particularly by the Ashtons, of Hyde, and there, at Stalybridge, and in the immediate neighborhood of North Derbyshire print works were afterwards erected, as they had been somewhat previously on many of the streams in the immediate vicinity of Manchester. To return to the period of the introduction of the print trade into Lancashire. The Claytons were followed with great vigor by Robert Peel, the father of the first baronet, and grandfather of Sir Robert Peel, the Prime Minister. Peel was a yeoman, and lived at Cross, near Blackburn. Active and energetic, he entered into the cotton manufacture, and added to it the printing business. It is stated by Baines (and he had it from one of his family) that the first experiments were secretly made in his own house, the cloth for printing—in those days by block only—being smoothed for the purpose by ironing. Mr. Peel carried on his business for some years afterwards at Brookside, near Blackburn, aided by his sons, and the concern was eminently prosperous. His eldest son, afterwards the first baronet, possessed strong talents, and devoted himself to business from an early age. This son branched off from his father's concern, and established himself at Bury, with his uncle, Haworth, and his future father-in-law, William Yates—names now extinct in the trade, and only remembered as the sharers of the success of the Peel family. Peel was to calico-printing what Arkwright was to spinning; a man of iron mind and frame, possessing a quality which seems to have been very rare among the early printers, great mercantile talent and application amidst all the shocks of trade, which, though then amazingly profitable, carried with it corresponding risks.—Con.

#### JACQUARDS.

The various parts that constitute a jacquard harness and its accessory parts have special names to distinguish them, and are called neck cords or tail cords, mounting threads, coupling hangers, mails, lingoes and comber board. The neck cords or tail cords are made of strong cotton twine, to which the mounting threads are tied. The mounting threads are made of linen yarn, the thickness of which depends on the class of work it is to be used upon. When light fabrics are to be woven the mounting twine is thin, and when heavy fabrics are to be woven, strong, heavy twine is needed. The length of the mounting twine depends on the height the jacquard is set above the loom, and the width of the reed space, and whether the mounting threads are to be straight or twisted. The lower end of the mounting threads connected with the upper coupling, which consists of a linen twine looped of various lengths, as described in an article in the American Wool and Cotton Reporter.

If the connection with the mounting thread is to be above the comber-board the length of the loop will be from 12 to 16 inches, and if below, then from 6 to 9 inches will be the length. The lower part of the coupling passes through the mails, which are made of brass, copper, steel or glass, and have from one to

five eyes for the warp threads with a small hole near each end. The end holes are for the coupling twins and hanger. The hanger loop is from seven to nine inches long, so that the lingoe to which the lower end is attached will not be drawn up among the warp threads during shedding. Lingoos are made out of round wire flattened at one end, through which a hole is bored for the passage of the hanger. The weight of the lingoes varies according to the kind of work it is to be used on. It is a dead weight hanging at the end of each harness for the purpose of keeping the proper amount of tension on the harness. The coarser the harness twine and warp used, the heavier the lingoe will have to be. In some cases one lingoe will weigh a quarter of a pound, and in other cases lingoos that only weigh one-sixtieth of a pound each are used. The harnesses pass through the holes in the comber board, and those holes should correspond with the fineness of the reed. In laying out a comber board it is better to have it a little finer than the reed. In a 400 hook machine, with 10 harnesses to a hook, it will require 4,000 holes in the board, arranged in rows of eight across the board, and each row zig-zags with the adjoining row. In mounting or attaching the harnesses to the hooks of the machine various methods are employed, and the manner in which the harness is mounted will depend on the class of goods to be woven. For dress goods, damasks, etc., the style of mounting called full harness, is practiced, as by that method a wide variety of weaves can be produced. In full harness mounting one thread of the warp is drawn through each eye of the harness, and one pick is put in for each card. To save expense the harnesses are tied in repeats, and each thread of a repeat can be lifted independently of any other thread in that repeat, but the corresponding threads in the other repeats are lifted at the same time.

In order to accomplish this a number of harnesses are tied to the neck cord of one. Take a 400-hook machine, with 400 threads to the pattern, the tie-up would give 10 harnesses to a hook and 10 repeats, and to lift one hook one thread in each of the repeats would be lifted. Hali harness is applied to that style, in which every alternate warp thread passes through the harnesses without being drawn through the mail, but is drawn through a heddle mounted on a shaft in front of the harness. Gauze harness is applied to harnesses that are fitted with doups for weaving gauze and leno. Split harness is the term used to describe the combination where the body or ground of the fabric is woven by shaft, and the pattern by the jacquard, each hook of which controls two threads. Nearly all the mounting is after the style of full harness, and the number of repeats will depend on the size of the pattern. Most harnesses are mounted with the tie large enough to allow of a variety of patterns, and the weaves are all confined within the capacity of the mounting. Several methods are followed in preparing the lingoos, and one of the quickest methods is to fasten two wooden uprights on a bench, with holes in them to receive a thin, flat wire. This wire is pointed at one end, and the mails are strung on it through the centre hole or eye, and then the wire is placed in the uprights. A spool containing twine for the hangers is mounted on another set of uprights, on which it freely revolves. The end of the twine is waxed so that it will pass through the holes in the ends of the mails at one operation. After passing through the holes in the mails the end of the twine is fastened to a wooden pin set in the bench about the length that the hanger is to be from the mails. If there are many mails on the wire several of the wooden pins are fixed in the bench, and by the aid of a hook the twine is drawn from between each mail and looped over one of the wooden pins. After each mail is in this manner provided with a hanger, the twine is cut and the two ends of each hanger brought together and passed through the hole in the end of a lingoe. Then a knot is tied on the two ends, which is drawn tight against the lingoe, and the loose

ends cut off close to the knot. When all the hangers that have been looped through the mails are attached to lingoos, the end of the twine on the spool is again waxed and passed through the holes in the other end of the mails. This is for the couplings, and the wooden pins should be arranged the length of the coupling from the wire holding the mails. The twine must be drawn from between the mails—but not out of the holes—and looped over the pins the same as when preparing the hangers. When the couplings are all looped over the pins, cut them at the pins and tie a weaver's knot on the loose ends of every coupling. Then pass a rod through the couplings with the knots of the couplings on the rod, and let couplings, mails, hangers and lingoos hang down. It frequently happens that in a close set harness the lingoos are often prevented from pulling the harness down during shedding, and the hanger loop raises through the hole in the mail, and breaks warp threads. To prevent this, the hangers and couplings are varnished and twisted by first giving them a light coat of varnish or flour paste, and before it has an opportunity to dry, a handful is twisted on the knee, and the operation is continued until all are twisted. In no case must the coupling be varnished clear to the top; with the knots arranged at the top a space of about two inches must be left free of paste or varnish, so that the twine will be soft and flexible to tie to the mounting threads. After the paste or varnish has dried the hangers and couplings are given a coat of good varnish. It is often necessary to have lingoos of two different weights when the slope of the border twine is very great, as in such cases heavier lingoos are needed to keep them down than those used in the centre. The lingoos can all be of the weight used on the borders, but that is unnecessary, as the increased weight in the centre adds to the friction on the harnesses during lifting and consumes power without giving any return.

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## Foreign Textile Centres

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MANCHESTER.—The demand for cotton goods has been fair. The enquiry for yarns has, of course, been influenced largely by the condition of the market for raw material. At present it may be safely taken that the prospects of a big world's crop are promising. The statements made in Liverpool and in New York are accepted with many grains of salt. Looms are well engaged, and spinners are not disposed to bend the knee to buyers. The position, in fact, is at the moment in favor of the man who spins and weaves. The reason is not far to seek. The productive departments are now very actively engaged, and for the East orders are coming forward quite freely. The enquiry for fancy goods on home trade and shipping account has for some time been active. In fancy piques and shirtings there has been quite a considerable sale. Light goods of Yorkshire make have also been freely enquired for, and it now appears that in articles of this class the trade during the next few seasons has been greatly helped by the revulsion against other classes of dress goods and draperies. The silk branches are doing better. The revival, due to causes already discussed in these columns, is helping the trade along for the time being. There has been a big demand for silks and mixtures, and mercerized stuff has now quite a run. The influence of goods of this class on the silk trade seems destined to extend to a period when the young men of to-day will be in their graves. The silk sections have been busy, but it is to be noted that the conditioning movement in the principal centres has fallen off—a result not surprising, in view of the extreme activity noticeable for some time past. The crop news is rather conflicting, and it would be unwise at this juncture to accept, without a grain of salt, any of the assertions put forward by interested parties, either on the bull or the bear side.

**LEEDS.**—For the autumn season business is opening out rather slowly, being somewhat delayed, doubtless, by the unusual attention which has been paid to the late spring season business. The tendency towards costume cloths of a tweedy character appears to be gaining strength. In the clothing trade the factories are still being kept busy with light goods for present use, and the past season must have been in most cases quite satisfactory. Coating makers are now compelled to insist on at least a fair proportion of the advance which has taken place in raw material, although these have, as a rule, helped their customers as much as possible with their cheaper purchases; and no doubt this advance will in some cases be sufficiently serious to cause some regular makes of cloth to be dropped in favor of cheaper goods in order that the made-up garments may come in at a popular figure.

**BRADFORD.**—It may be remarked that the present series of London wool sales is specially bare of its ordinary proportion of fine merino wools, as in addition to the continued decrease caused by the shortage from the sources of supply, this sale has also suffered from large purchases made on the other side for direct importation to Europe and America. The advanced prices have undoubtedly something permanent in their character, and though they will be resisted it seems as if, at all events, a large part of the advance must eventually be paid. In some branches of the trade, such as lining goods, no doubt fine merino cloths will be substituted by cotton fabrics, and crossbred wool cloths will, to some extent, supplant those made from pure merinos; but in cases where only merino wool will fill the bill, these higher prices must eventually be paid, followed perhaps by higher ones still. The big influx of the coarser colonial crossbred wools, which was referred to above, has already exercised a most disastrous effect on the prices of all classes of home-grown wools, and from nearly every country fair held up to the present, we hear only of unprecedentedly low prices and a most sluggish demand. Up to the present even the best pure lustre wool has not fared much better than the non-lustrous wools, but there are some slight signs of an improved enquiry for the best bright hogs, probably for mixing with mohair. Both here and at the sources of supply raw mohair and alpaca keep fully firm in price, and forward purchases, both of yarns and goods, show that every confidence is felt that the demand for bright goods will be fully maintained for the spring trade of 1900. Spinners of both mohair and merino yarns here are extremely well employed, but the latter are now being compelled to hold out for very nearly, proportionately, as advanced rates as have been reached in the raw material. The demand for cheap two-fold yarns from the Continent is quieter, and there is no improvement reported from the districts where the braid yarns are consumed. The demand for manufactured goods of a summer character could not, of course, be expected to continue to the same extent as it has done since Whitsuntide, but there is to-day quite a nice business doing in good class bright goods, especially in fine plain blacks. There is every indication that bright goods will again be much worn for the summer of 1900, both in this country and also in the United States. Those makers who have made the production of fancy silks their specialty in this district, and who have been so busy during the past season, are already getting some definite business for next season.

**ROCHDALE.**—The flannel market recently has been quiet in the home trade department, but shipping orders are coming in earlier than usual. The early demand in this section of the trade is apparently caused by the upward tendency of the price of wool and the impression of merchants that they will not be able to do better by waiting their usual time. The manufacturers are busy preparing for their July deliveries. Formerly June was

the heavy month, but the season has now become later, and the heaviest deliveries occur as autumn approaches.

**KIDDERMINSTER.**—The constant dropping in of repeat orders keeps the Brussels looms fairly busy. The odd lengths, sizes, and "special" nature of many of these orders make them troublesome and expensive, but Kidderminster manufacturers are, as a rule, well laid out for this difficult work. The Axminster branch is steadily busy. The spinning trade, as a whole, is better, but the improvement is mostly in fine yarns. Still the effect is felt indirectly on carpet yarn, and prices, though at a miserable level, are firm, with an inclination to an advance if for future delivery.

**NOTTINGHAM.**—Despite the fineness of the weather, and the briskness that characterizes nearly every trade, there is much grumbling here at the smallness of the orders received, especially from home buyers. Fashions in England at the present time are rather adverse to the lace trade, and manufacturers will rejoice when a change sets in in this respect. Silk laces of recent years have shown a remarkable falling off in so far as the local production is concerned. At one time a large quantity of these laces was produced in Nottingham, but now French manufacturers appear to have almost a monopoly in these goods. A few manufacturers here, with commendable zeal, try their hardest to compete with their foreign rivals. The results, however, are oft-times very disheartening to them. Cotton millinery laces are not moving very briskly for the home trade, although export business is fairly active. Here and there manufacturers of superior goods are well engaged in Valenciennes, Malines, Renaissance and Torchons, both laces and insertions, but the general demand leaves much to be desired. This may be partly accounted for by the fact that the half-yearly stocktakings are at hand. Perhaps, after this work is completed satisfactorily, orders will be given out more freely. The bobbin net, plain tulle, and mosquito net branches continue to flourish. The local machines, as well as those in Derbyshire and the West of England, are well employed, orders for some qualities still reaching forward well into the future. Naturally, prices are firmly adhered to. The export demand for embroidery purposes is considerable, and there is the usual demand for millinery and other purposes. There is only a moderate enquiry for spotted nets and Mechlin tulle. Rice nets are in limited request, and other stiff foundation nets are slow of sale. Moderate quantities of antique and corset nets are selling. Lace curtains and window blinds are not moving so freely as of late. Some manufacturers find it difficult to work their machinery at a profit just now in face of the competition they have to meet with from Scotland and some places abroad. Another disturbing element is the large quantity of art muslin curtains which is at present on the market. One redeeming feature is the preference shown in America for the better class Nottingham curtains. Caps, aprons, ruffles, and other fancy made-up goods do not meet with a very buoyant enquiry, says the Drapers' Record, London, and there are many hands disengaged in this branch. Good quantities of plain and fancy veilings are moving, but there is much competition both at home and abroad. There is a super-abundant supply both of English and French goods, and unremunerative prices are the inevitable result. Cotton embroidery trimmings meet with a poor enquiry. Some specialties in hosiery are meeting with a fairly active demand. Fine cashmere and merino goods are firm in value with an upward tendency. Large quantity of hose, vests, and combinations are selling for the home trade and for the colonies. Natural wool goods are in moderate request. There is an average demand for fancy half-hose. Moderate quantities of embroidered goods are selling in silk and wool. No improvement can be reported in the cotton branches.

**LEICESTER.**—In the hosiery industry there is great activity, and the prospects are brighter than for many years. The production in many cases is quite unequal to the demand, and prices generally are very firm. The yarn market is active and strong. Stocks are extremely small, while prices had been run down very low. Cashmere yarns sell freely, and users are placing heavy contracts. The best lambswool yarns are a brisk trade.

**SOUTH OF SCOTLAND.**—Good reports continue to be received from the tweed districts in the South of Scotland. Makers, who have not been so well employed for several years, hope that the present activity will not be of short duration. There is still a good demand for worsteds, and this has the effect of keeping carding machines out of work.

**KIRKCALDY.**—The various industries at Kirkcaldy are in a very healthy condition, and there is a steady demand for labor. All the linen establishments are in full working order. With the opening of the Caledonian Linen Mills the output will be considerably increased. The new work is designed for 600 looms, but at present only 400 are in operation with the requisite winding, warping, dressing, glazing and mangling machines. The floorcloth and linoleum factories are as active as ever.

**BELFAST.**—This linen market is not quotably changed, but keeps very steady, with a full average trade passing. Fresh orders, naturally, are somewhat restricted at the present season, but in no quarter is there any disposition shown to force sales. Flax continues to make satisfactory progress. The spinning end is characterized by quiet, regular buying at late full rates, and stocks are in easy control. The manufacturing branch is well maintained, and the fresh business is sufficient to sustain the strength of producers. Coarse goods are selling fairly briskly at full rates. Local and cross-Channel buying of white goods keeps quiet at the moment, but prospects for the new season are cheerful.

**LYONS.**—The Lyons market has shown a little more activity recently. The better tone of the raw silk market so far fails to influence the demand for manufactured goods, the buyers apparently still being under the impression that prices will be lower. There can, however, be little doubt that the market has turned and that those will be disappointed who refrain from placing their orders in the hope of obtaining more advantageous terms later on. The manufacturers are evidently not inclined or in a position to make concessions for larger contracts, while the daily arriving smaller orders furnish sufficient work to keep the looms running at remunerative prices. Nothing new developed with regard to the fashion during the coming season, says *The Dry Goods Economist*, New York, and the uncertainty as to styles is doubtless to some extent also responsible for the apparent indifference of buyers, but the outlook is promising and a liberal use of silks expected for fall. Light-weight silks for immediate use sell freely, while for later delivery surahs, satin merveilleux and satin duchesse receive most attention. Very little has been doing in fancy silks, although a good number of looms are busy on these styles. The demand for pieced-dyed silks has somewhat improved. The velvet trade gives great satisfaction, although the demand for goods from stock is only moderate. The mills are well supplied with orders for fall in schappe grades, as well as in all-silk goods, and the good demand for fancy velvets shows beyond doubt that pile fabrics will enjoy great popularity during the coming season. A feature of the newest styles is their great lustre and pliability. Ribbons were in fair demand for the home markets, while the import trade is quiet. The principal grades are double-faced satins, moires and gros grains. The demand for black velvet ribbons continues good.

**CREFIELD.**—The market was less active recently especially as far as the wholesale branch of the trade is concerned, while in the retail the good demand continued, so that stocks will be in good shape before the new season begins. The mills are not affected by the between-season's period, and, in fact, to judge by the number of looms which are kept going, it would seem that the price question, which caused some complaints, has had almost no effect on the volume of trade. Tie silk manufacturers are less busy just at present, but no looms are idle, all hands having found ready employment in the other branches of the industry, which are well supplied with orders for fall. There is no lack of work for either hand looms or power looms, and the trade feels confident that during the coming season the fashion will again favor silks. Plain taffetas, in black and colors, still continue to be the leaders among the goods ordered for fall, while with regard to fancies nothing new has appeared. The variety of the latter, however, is great, without any particular style gaining prominence, stripes and checks being as well received as damas or moires. The velvet trade continues very active, although there is the usual lull in the demand for goods from stock. The mills are well supplied with fall orders, and also with regard to prices no complaints are heard. It should, however, be mentioned that there is a material falling off in the volume of American orders, except for the lowest grades of goods.

**MILAN.**—The raw silk market has lately been completely dominated by the reports of the doings in the cocoon markets, which are now in full progress. Unfortunately the rise in the raw silk prices which began again during the latter part of last week continues, with the result that the cocoon prices have been forced up to higher figures than have been known for years. The mills could not have chosen a more unsuitable moment for coming forward with their demand for raw silk, as these high cocoon prices will render the trade most difficult for the rest of the season on account of the high cost of the silk. The prices advanced 2 francs, but the number of deals remained rather limited owing to the great reluctance of holders to sell or to accept contracts for later delivery. Fine and medium sized spinning greiges in best grades were chiefly sought by European buyers, while America appeared to content itself by gathering information on the changed condition of the market. There was a fair demand for Asiatic grades, but few deals could be concluded owing to the higher prices asked by importers.

**ZURICH.**—The better tone of the Italian markets has not remained without influence on the Zurich raw silk trade, where a good demand has developed. The volume of trade, however, was only limited, deals having become difficult owing to the higher prices asked by holders, who obtained an advance of fully two francs. The mills appeared mostly interested in contracts for later delivery, of which a good many were discussed but few concluded, the holders, as a rule, being little inclined to accept contracts at present figures for extended periods of delivery. The general impression seems to be that higher prices will rule later on, which would make contracts concluded at present look anything but advantageous from a dealer's point of view when the time for delivery arrives. The tendency of the market is decidedly upward.

Chas. B. Miller, overseer of the weave-room in the Rosamond Woolen Co.'s mill, Almonte, Ont., has retired, owing to ill-health, after 25 years in the company's service, fifteen of which have been as overseer. At the close of the last day's work he was surprised by the employees of the weave-room presenting him with a complimentary address printed on white satin, and a handsome onyx clock. The presentation was made by Miss M. Scott, and the address read by Robt. Lees.



# Textile Design

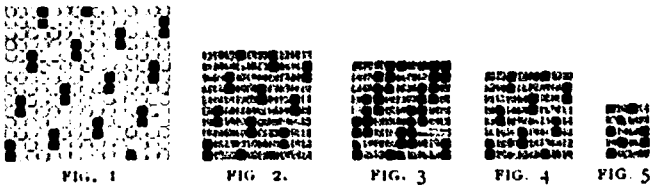
## COVERT CLOTHS.

A covert of heavy weight, with a bold whipcord effect, may be produced by the 15-shaft satin weave given in Fig. 1. It is more adapted to mixture coloring than twist effect, the warp being a fawn mixture yarn, whilst the weft, which is invisible on the face, may be a solid color of a similar degree of shade. The weaving particulars are —

- 80 ends per inch 1/40 skein mixture.
- 76 picks per inch 1/18 skein color.
- 5760 ends, 30 oz. per yard, 54-in. finished width.

This cloth is of soft handle, but not of tight texture, and may be modified by employing a 2/40 worsted warp in place of the woolen

A much neater and closer design is obtained from the 10-shaft satin, as shown in Fig. 2. This design specially lends itself to a worsted warp, and is adaptable either for mixture or twist colorings,



although the former give the neater effect. The particulars of a good heavy cloth are —

- 76 ends per inch 2/40 mixture worsted, 70's quality.
- 60 picks per inch 20 skein color.
- 5320 ends, 24 oz. per yard, 54-in. finished width.

A still finer and lighter cloth may be obtained in the same design (Fig. 2) by the following weave:—

- 120 ends per inch 1/48 skein mixture.
- 95 picks per inch 1/30's worsted mixture.
- 8100 ends, 18 oz. per yard, 54-in. finished width.

A very pretty covert cloth, but which necessarily is of expensive structure, is obtained by using a three-fold warp. For instance, a so-called 2/48 worsted yarn is made up of a 1/96's dark fawn and a 1/96's light fawn twisted together. This twist is then twisted to a 1/48s dark fawn, and the resulting grandrelle yarn used for the warp. A design suitable for this class of covert is given in Fig. 3, and the weaving particulars are —

- 160 ends per inch 2/48 grandrelle.
- 64 picks per inch, 50 skein color
- 9760 ends per inch, 20 oz. per yard, 54-in. finished width.

Coming to piece-dyed coverts, a serviceable cloth is made by using an 8-shaft weave, as shown in Fig. 4. The warp is a union mixture having 75 per cent of wool, the rest being cotton, and although these yarns are spun in this country, the matter has been taken up to a much greater extent on the Continent. The mixing of the union may, of course, be varied, but the cottony effect becomes pronounced if less than 75 per cent. of wool is used. The cloth is woven:—

- 100 ends per inch 40 skein grey union.
- 66 picks per inch 36 skein grey wool.
- 6800 ends, 20 oz. per yard, 54-in. finished width.

A somewhat similar cloth, but with a more pronounced effect, may be made from the same design (Fig. 4), employing a cotton twist instead of a cotton mixture. The cotton thread should be much finer than the wool twist, a very suitable proportion being for a 2/40's approximate worsted count, a twist composed of 1 30's wool and 1/40's cotton. The proportion of cotton should be smaller rather than otherwise, for a thick twist makes the pattern look coarse and bold, irrespective of the effect on the handle. This cloth is woven as follows:—

- 100 ends per inch 2/40 (approx.) union twist.
- 64 picks per inch 1/16 grey worsted.
- 6700 ends, 20 oz. per yard, 54 in. finished width

A somewhat similar cloth in appearance, and made of the same kind of warp twist, is produced as follows:—

- 100 ends per inch 2/40 (approx.) union twist.
- 80 picks per inch 30 skein grey wool.
- 6800 ends, 24 oz. per yard, 54-in. finished width.

The design is a 10-shaft satin, like Fig. 2.

An effective cloth, although not exactly made on the usual covert lines, is obtained by using a so-called "electric" yarn. This yarn has some bright fibres mixed with the wool which, although taking the dye, appear by their brightness to have failed to do so. The goods are piece-dyed, but owing to the absence of light colored portions, care should be taken to avoid dyeing too dark a shade. The following, woven in a 10-shaft design (Fig. 2), are particulars of a high grade cloth. As the yarn is somewhat expensive, it is useless putting it into coarse fabric:—

- 130 ends per inch 2/48 "electric" yarns.
- 96 picks per inch 1/30 grey worsted.
- 8600 ends, 20 oz. per yd, 54-in. finished width.

When lower sets are used, as is the case in most covert cloths, the goods require more milling to make a serviceable fabric. Such goods are milled up from 20 to 30 per cent. in length, and where pure wool weft is used, to an equal extent in width. The particulars of such a cloth woven in a 10-shaft design, as Fig. 2, are:—

- 60 picks per inch 1/20 skeins mixture.
- 40 ends per inch 2/54 skeins grandrelle.
- 3450 ends, 21 oz. per yard, 54 in. finished width.

A cloth of similar appearance to this latter one may be made in a smaller warp float, and gives a lighter weight of fabric. The design is a 5-shaft elongated twill, as given in Fig. 5, and the particulars are:—

- 40 ends per inch 2/54 skein grandrelle.
- 37 picks per inch 1/20 skein mixture.
- 3450 ends, 18 oz. per yard, 54-in. finished width.

A large number of covert cloths may be obtained similar in structure to the foregoing, but with cheaper filling. If angora yarn or loosely spun cotton weft is used, many of the particulars given are adaptable to the change, the necessary variation being made by decreasing the width of the reed space taken by the warp and increasing the number of ends per inch. This is to make allowance for the reduction of shrinkage when wool yarns are discarded.—The Textile Manufacturer, Manchester.

## TEXTILE IMPORTS FROM GREAT BRITAIN.

The following are the sterling values of the textile imports from Great Britain of interest to the textile trades for May and the five months ending May 1898-1899:

|                                | Month of May. |         | Five months ending May |         |
|--------------------------------|---------------|---------|------------------------|---------|
|                                | 1896.         | 1897.   | 1898.                  | 1899    |
| Wool.....                      | £ 1,396       | £ 2,186 | £ 21,112               | £ 7,314 |
| Cotton piece-goods .....       | 19,030        | 27,841  | 202,384                | 242,310 |
| Jute piece goods.....          | 9,665         | 12,730  | 54,339                 | 45,605  |
| Linen piece goods . . . . .    | 6,817         | 7,512   | 57,925                 | 73,055  |
| Silk lace .....                | 255           | 1,668   | 3,936                  | 8,078   |
| " articles partly of . . . . . | 1,574         | 2,560   | 9,675                  | 13,255  |
| Woolen fabrics ... ..          | 7,444         | 10,415  | 89,115                 | 108,329 |
| Worsted fabrics.....           | 16,499        | 16,703  | 216,044                | 220,794 |
| Carpets .....                  | 6,023         | 7,209   | 91,962                 | 95,839  |
| Apparel and slops .....        | 11,328        | 10,202  | 117,469                | 87,856  |
| Haberdashery .....             | 3,410         | 6,723   | 69,893                 | 72,113  |
| Writing paper, &c.....         | 1,946         | 3,988   | 8,146                  | 11,409  |
| Other paper .....              | 499           | 824     | 3,249                  | 3,235   |
| Stationery, other than paper   | 1,164         | 1,078   | 5,890                  | 4,721   |

—The area under flax in Manitoba this season, as shown by the crop Bulletin issued by the Department of Agriculture and Immigration, is 21,780 acres, as against 14,561 acres in 1898, and 20,653 acres in 1897.

### WATERPROOFING FABRICS.

The processes that have been brought out from time to time regarding this most valuable property of rendering fabrics proof to water, have, no doubt, been examined practically by their inventors, and also by those most likely to use them, but with all the several ideas that have been suggested, there yet remains to be devised a thoroughly practical and scientifically correct process, says Textile Colorist. In the first place, when the treatment of fabrics is undertaken with the intention of imparting a waterproof finish, several important considerations must be taken into account. Let us examine, for instance, an ordinary cotton and woolen fabric, which we desire to render impervious; we find that it is made up of two sets of threads running at right angles to each other, and further, that where these several threads cross, there are openings or interstices. Now to make this fabric absolutely waterproof it will become necessary to so thoroughly impregnate it with a substance which of itself is not acted on by water, that all these spaces and openings are thoroughly and completely closed. To do this effectively, two processes are to be suggested, one in which a layer of waterproof composition is spread over one side of the fabric and rolled or worked in by pressure, and the other consisting of passing the fabric through a melted bath of the waterproof compound. This latter process is not applicable to ordinary waterproof garments, but the process is used for some classes of goods. The former process is much used, especially in the manufacture of many grades of ordinary rubber clothing, firemen's and policemen's coats, etc., but by varying the nature of the composition used, it is applicable to the manufacture of many of the better qualities of wet weather garments, by interposing a thin layer of composition between two, generally dissimilar, fabrics, such as we are familiar with in the outer and inner sides of a "mackintosh." For heavy goods of this description, a thin fabric thoroughly impregnated with the composition is cemented between the two outer cloths by means of great pressure. As may be imagined from the character of the garments referred to, the composition employed is compounded chiefly of rubber, with or without substitutes or adulterants, except in the one case mentioned above in connection with the immersion process, where large quantities of seamen's "oil skins" or "sou'westers" are made, a process calling for considerable quantities of good quality of linseed oil, for the process is one which consists essentially of varnishing the already made-up garments. Regarding the other type of waterproofing process, that which does not aim to close up the pores of the cloth, but rather to render the individual fibers impervious to moisture, is based upon the application of several substances, some of which are soluble in water, but when dried upon fabrics impart to the latter water-repelling properties. Other substances, not soluble in water, but soluble in other media, such as some of the hydrocarbons, benzine, etc., the waterproofing substances of this character being dissolved to make a very weak solution, the fabrics or garments thoroughly soaked in it, then allowed to dry. This is the ideal method of waterproofing, but, as the pores of the fabrics are not closed, there is a chance for rain water to work through. For ordinary cloth, such as is made up into sheet garments or for so-called "business wear," waterproofing has never been popular, the chief reason being that, owing to the peculiar nature of the compounds used, they have served very largely as a holder for dirt and dust, besides having other objectionable features. The application of water-soluble substances as a means of waterproofing centres around the use of alumina compounds, the most prominent of which is common red liquor, or acetate of alumina; this is applied to the cloth to be proofed by means of padding, and then passed through a dilute solution of soap,

the object of which is to cause a fixation of the alumina base in the condition of the stearate or palmitate of alumina. Of course, it must be understood that the water-repelling properties are imparted to the cloth by the new compound, of which only a very small amount is necessary to make even a reasonably gauzy piece of goods to hold water. Not only can fabrics be waterproofed by this means, but shoes, etc. If the right proportion of the ingredients are used no appreciable odor is noticed on the goods when dried, but if any excess is used, then there is a likelihood of a peculiar tarry odor due to the acetic acid of the red liquor.

A method for waterproofing garments of every kind from shoes to velvets, has been found to be in a benzene solution of a melted mixture of paraffine and pure rubber. The paraffine is first melted and the small scraps of rubber are dropped in and stirred until they are dissolved. The mixture is allowed to become cold, when it can be cut up into fragments for use as required. For use, 1½ to 2 ounces are dissolved in a gallon of benzene, and applied to the goods if the latter are small, or if large, that is, whole pieces, large volumes of the solution are made and the entire pieces are immersed to soak up the liquor, the excess is allowed to drain off, when the pieces are dried. Elegant results are obtained if the goods can be well and thoroughly dried in an oven before passing into the waterproofing solution. In this way plushes and velvets can be waterproofed in an elegant manner without feeling oily or greasy, are odorless and capable of resisting water to a considerable extent. It has no influence on dyed colors and does not impair the feel or luster of the goods. Like everything else, however, too much of the composition will prove detrimental, while too small a quantity will not effectively produce the desired result. It is asserted by many physicians that waterproofed garments would be productive of much illness on the part of the wearers, and no doubt there is much truth in this, but in the ordinary use to which the fabrics are put, chiefly as watersheds, no serious danger need be anticipated.

### THE LATE HON. W. E. SANFORD.

The Hon. W. E. Sanford was drowned by falling from a boat while fishing near his summer place, "Sans Souci," Lake Joseph, Muskoka, July 10th.

He was born in New York in 1840. At the age of six he was an orphan, and came to Hamilton, Ont., where his maternal uncle, the late Edward Jackson, then the leading citizen of Hamilton, and its most liberal philanthropist, took care of him and reared him as his own son. His boyhood and school days were spent in the Ambitious City, after which he entered the publishing house of Farmer, Bruce & Co., New York. His business capabilities so recommended him to his employers that he was offered a partnership, which only the death of the senior partners prevented him accepting. After living in New York for six years he returned to Hamilton, married his cousin, Miss Jackson, and entered into partnership with Murray Anderson and Edward Jackson in a large foundry business in London, Ont. On the death of his wife, however, which occurred a few months later, he retired from this venture and returned to Hamilton and engaged extensively and successfully in the wool traffic. So well known did he become as a wool merchant that he earned the sobriquet of the "Wool King of Can." In 1861 Mr. Sanford entered into business with Alexander MacInnes, in the wholesale manufacture of clothing, with a capital of only \$20,000. This partnership existed for ten years, when Mr. MacInnes withdrew. Mr. Sanford continued as the head of the W. E. Sanford Manufacturing Company. This firm, it is quite safe to affirm, has from a small beginning outstripped all its rivals. It has com-

pletely revolutionized the ready-made clothing trade, till its competition with custom make is keen. The firm's head offices and warerooms occupy what is known as the Sanford Block, a spacious and handsome structure on the corner of King and John streets, Hamilton. There are branches in Toronto, Winnipeg, and Victoria, B.C., and thousands of operatives are employed. Though Mr. Sanford was the head and controlling force in the firm, yet so intimately was his private secretary, Joseph Greene, associated with every part of the big concern, that no obstacle to the progress of the business will result from Mr. Sanford's sad death.

#### VALUABLE TO THE TEXTILE TRADE,

We have received a copy of the "Canadian Textile Directory" (Toronto and Montreal. Biggar, Samuel and Co., price \$3) for 1899. The work is a reference-book to producers and dealers engaged in the textile and kindred industries and trades in the Dominion of Canada and in Newfoundland, including the various branches of the cotton, woolen, hosiery, carpet, silk, jute, linen, felt, rubber and asbestos industries, as well as the drapery, haberdashery, paper and dye stuff trades. Classified lists of manufacturers agents, commission merchants, wholesale and retail dealers are given, and it may be mentioned that the retail dealers of the Yukon district are included in the present edition. The volume includes a considerable amount of statistical matter, which cannot all be said, however, to be up to date, the detailed returns of Canadian imports of textile materials and manufactures, for instance, are for the fiscal year ended with June, 1897. The general customs tariff of the Dominion affecting the textile and kindred trades is included, and the corresponding sections of the Newfoundland and United States tariffs. In addition to its probable utility to exporters from the Mother Country as a "Directory," the volume is not without interest as a source of information on the development and organization of the dry goods and kindred trades in the various towns and provinces of the Dominion. A new feature of the work, as compared with previous editions, is a list of the tanners and curriers of the Dominion.—Manchester, Eng., Guardian.

"We have received from Biggar, Samuel & Co., Toronto, a copy of the latest edition of The Canadian Textile Directory. The work is complete in every respect, and contains much information which will be found valuable to all engaged in any branch of the textile industry and its allied trades. A complete list of the cotton, woolen, knit goods, silk, jute and flax mills in the Dominion, together with their management and equipment, are presented in handy form. The job dyers, the clothing manufacturers, the dealers in raw wool and cotton, the dealers in dyestuffs, the manufacturers' agents and the commission houses have not been forgotten, as their names and locations are presented in their respective departments. In addition to this information, the latest tariff schedule and other statistical matter are given in concise form for ready reference. The publishers are Biggar, Samuel & Co., 62 Church street, Toronto, Canada."—Textile Manufacturers' Journal, New York.

"We are in receipt of the fourth edition of The Canadian Textile Directory, which has just been issued. This directory contains the names of all the manufacturers and dealers in the textile and kindred trades of the Dominion of Canada and Newfoundland. Among the new features of the work will be found a list of the tanners and curriers of the Dominion. The contents of the book are very conveniently arranged, and the work reflects credit upon its publishers."—American Wool and Cotton Reporter.

#### TO BLEACH COTTON.

Editor CANADIAN JOURNAL OF FABRICS.

Kindly state the best methods of bleaching cotton snow white.

Yours truly,  
COTTON.

Toronto, July 13th.

#### WOOL MARKET.

Montreal.—The new clip of Quebec and Eastern Ontario wool is pronounced above the average in quality and condition, but there is little change from previous years in quantity. Canadian fleece, which opened at 14c., when the new clip began to come in, now sells at 16c., while 10½ to 11c. is paid for unwashed, and 17 to 20c. for pulled. Combing wools, however, are rather hard to dispose of, as the Americans are not able to import at present prices, when the duty is added. The cause of the general advance is the high prices ruling in the European and American markets for merinos. The Australian clip is short because of the drought and from the increasing proportion of crossbreds now grown in Australasia for purposes of mutton, to the neglect of merinos. Merino washed wools which, six months ago, sold in this market at 35 to 40c., now bring 47 to 50c., a pound, while grease wools bring 17 to 21c. At the current sales of Colonial wools in London, the advance over prices of the previous sales averages 15 per cent. As a result of this general advance, United States woolen manufacturers, failing to get a corresponding advance in finished goods, are driven to a more extensive use of shoddy and other mixtures. Indeed, the manufacture of high-class pure-stock goods seems almost impossible with merino wool costing, as it does, 70 to 80c. a pound laid down, duty paid, in the States, and it is no wonder that American woolen manufacturers feel more than ever between the devil and the deep sea from the present high tariff on raw wool for which many of them clamored, in the belief that taxed wool and a high tariff on finished goods was better than a low tariff and free wool.

Toronto.—The market here is very quiet with considerable wool coming in. Prices are very low but buyers are not anxious for business. Fleece is being bought freely at 14c., but no sales are being made.

#### LITERARY NOTES.

The office building occupied by the American Wool and Cotton Reporter, 148 Pearl street, Boston, was destroyed by fire recently. The paper appeared all right, however, though the edition had been partly prepared when the fire broke out.

The 27th annual report of the Silk Association of America contains the reports of the annual meeting, March 28th, 1899, and addresses at the anniversary banquet, February 2nd, 1899. The publication is a most tasteful volume of some 75 pages, and contains some most valuable statistics: Imports of raw silk, '75-'98; spun silk, '75-'98; world's raw silk, '91-'97; foreign silk consumption, '75-'98, etc.

The second issue of A. McKim & Co.'s Canadian News-paper Directory is now before the public, and the publishers are to be congratulated upon the work. The same system and thoroughness that characterizes this firm in the management of its large advertising business is evident throughout this work, which is not only very complete in detail, but admirably printed and bound. The directory contains a gazetteer of each city, town or village in which a paper is published, while at the beginning of each province is a page of condensed facts

relating to provincial resources, etc. A list of the officers of the various press associations is given with statistics of the imports of materials used in the printing and publishing trades, together with the rate of duty on the same. An illustrated sketch of the beginning and development of the advertising business of A. McKim & Co. is also given. One of the new features of this edition is a set of four large newspaper maps of the Dominion, showing the various cities, towns and villages that have newspapers. This enables an advertiser to select with greater intelligence the field he wishes to cover, and will be a great help. This, we believe, is the first time that cartography has been applied to the special subject of newspaper advertising, and this portion of the work is well executed. A purely Canadian newspaper directory is needed, and Messrs. McKim & Co. have, in this volume of 427 pages, shown that the work is in the right hands.

The July Century is a story-tellers' number, and is novel in its make-up, not only because it has a large amount of original fiction by ten living story-writers but because it contains also articles on seven of the world's most famous makers of fiction, two only of whom are living. In only one or two cases do these articles consist of criticism. In most cases they are new material concerning the writers mentioned. For instance, two hitherto unpublished portraits of Sir Walter Scott, accompanied by a sketch of the artist who made them, are followed by a detailed and authentic account of the romancer's unhappy love affair, which cast a shadow over his entire life. The author of this true story is a descendant of one of Sir Walter's intimates, the brother-in-law of his successful rival and life-long friend. Mrs. James T. Fields tells of a visit to George Eliot and quotes unpublished letters from the famous novelist. "Stevenson in Samoa," contains such reminiscences as might be expected from the story-teller's step-daughter and secretary. "The Making of 'Robinson Crusoe,'" gives the true story of Alexander Selkirk and his sojourn on Juan Fernandez, with reproductions of his gun, his trunk, and other relics, and clears De Foe of the charge of having stolen his literary material from the original Robinson Crusoe. Victor Hugo as an artist is the subject of a paper by Le Cocq de Lautreppe, in which are reproduced several of the poet's hasty sketches and more elaborate designs. "Bret Harte in California," was well known by Noah Brooks, who fills several pages with entertaining gossip of a period that seems more remote than it really is. Critical articles on famous fiction-makers are Henry Rutgers Marshall's study of "Rudyard Kipling and Racial Instinct," and Montgomery's Schuyler's "The Canonization of Stevenson." The original fiction in this story-tellers' number includes, in Marion Crawford's "Via Crucis," the knighting of Gilbert Warde by Queen Eleanor; "A Day in Wheat," by Will Payne, in which Cupid turns up triumphantly in the Chicago wheat-pit; "The Monkey that Never Was," a characteristic story by the author of "The Cat and the Cherub"; "A Romance Invaded," by Gelett Burgess; "The Pianos of Killymard," by Seumas MacManus; and new chapters in the life of Mr. Stockton's Vizier, chronicling his interviews with Nebuchadnezzar, Miss Edgeworth, and Napoleon. Frank M. Chapman, the ornithologist, writes of Bird Rock, in the Gulf of St. Lawrence; Prof. Wheeler's "Alexander the Great" shows the conqueror in anger and in love, and Mr. Ford's "Many-Sided Franklin," is seen this month in his intimate and interesting relations with the fair sex. Most of these articles are fully illustrated, and there is an abundance of verse.

The contract for supplying the 4,000 yards, more or less, of linoleum required for the corridors and public offices at the new Toronto municipal buildings has been given to the T. Eaton Co. The prices are 68 and 83c. per yard.

### THE WOONSOCKET REED AND SHUTTLE WORKS.

The illustrated catalogue recently sent out by the Woonsocket Reed and Shuttle Works shows Isherwood's patented improvements on loom shuttles.

The first improvement shown of a cop shuttle, relates to the method of holding the spring in place in the shuttle. Heretofore, the method has been by means of a screw passing through the spring and screwed into the body of the shuttle. In the old manner of holding the spring it is said to be continually getting out of repair, causing loss to the manufacturer, and great annoyance and loss to the weaver. The defects are: The slot in the screw head, when left across the shuttle, cuts the yarn in the warp; the slot in the screw head gets bruised by the screw-driver, and thus cuts the warp yarn; the screw hole in the shuttle gets large after a short usage, and the screw rises, or the spindle flies up, and makes a smash; the spring getting loose, the spindle will vibrate, breaking the filling thread, thus causing additional waste and less production; the screw hole gets larger, and the screw has to be screwed down too far to get it to hold, which results in too much strain on the spring, and thus causes a large breakage of springs; the screw breaks in the shuttle, and has to be drilled out and the hole plugged up; this improvement can be adapted to any of the various styles of cop and bobbin shuttles where the spindle is held by a spring and screw; in this improvement the spring is held by a bolt and nut, and both are locked; the lug under the head of the bolt, and the slot in the counter-sunk hole of the spring locks the bolt, and the spurs of the washer being forced upward into the wood, and the ribs of the nut interlocking with the grooves of the washer locks the nut. The bolt and nut being immovable, it will be seen that the nut is most positively and effectually secured against any retrograde movement, and that any tension desired may be placed upon the spring. The nut is tightened or slackened by a socket key, and it will be seen when the nut is turned the spring yields, which allows the nut to turn and lock on each quarter turn of the nut. The bolt having no slot in the head to cut the yarn, and the bolt and nut being locked, preventing the spindle from ever getting loose, will save waste, smashes, and yarn cutting, save shuttles and repairs, prevent a large breakage of springs, and increase production.

The second improvement shown of a cop shuttle, relates to the manner of holding the spring in position in the shuttle, and in the form or shape of the spring. The bolt and nut lock of this improvement is the same as described in the preceding, except the method of holding the bolt from turning. The advantages of the bolt and nut lock in this improvement are the same as before explained, so therefore need no repeating. The old style or form of spring when applied to the shuttle, produces four corners or angles of the wood in the shuttle, and these corners catch and break the warp yarn, and in many cases make large smashes. In this improvement the spring is uniform, and when applied to the shuttle produces no corners or angles to catch and break the warp yarn and make smashes. This improvement can be adapted to any of the various styles of cop and bobbin shuttles where the spindle is held by a spring and screw.

The third improvement of a cop shuttle, relates to the method of holding the spring in position in the shuttle, and in the form or shape of the spring, also in the holding of the spindle in position in the shuttle.

The fourth improvement is of a combination cop and bobbin shuttle [outside catch], relating to the method of holding the spring and the catch; also, in the shape or form of the spring and catch. Heretofore the manner of holding the spring and catch was by a screw for each, and the shape of

the spring and catch was the old style, which, when applied to the shuttle, produced corners on the top and bottom of the shuttle. There being two screws, one on the top and bottom of this shuttle, and both spring and catch being the old shape, the defects were twice as many as in the cop shuttle. In this improvement the advantages of the bolt and nut lock are double, as a single bolt holds both spring and catch. The bobbin catch has the advantages of the uniform spring, by producing no angles or corners to catch the yarn; also, by having no screw hole and head in the face of it, will not cut the warp yarn after the wood of the shuttle has worn flush with the catch.

### WHAT IS A FAST DYE?

We hear upon all sides the term "fast" as applied to colors obtained from dyes, but it appears to be little understood just what constitutes a fast dye. It is hardly to be supposed that the unqualified term fast can be applied to every dye with justice, and yet we find many that are so designated, remarks The Textile Colorist. The term fast is essentially one of degree, and this can be well shown by examining the properties of the dyestuffs now on the market, a very large number of which are said to be, and beyond all doubt are, fast to light, that is, are able to withstand ordinary exposure indoors and exposure out of doors where the weather is good, but these same dyes may not resist the combined influence of light and moisture. Again, there are a number of familiar dyestuffs that at the time of dyeing and for some time thereafter will withstand ordinary washing, but fail when subjected to the exposure to light test. In this connection it may be remarked that when washing is mentioned as a test for the fastness of a dye it is generally understood to mean with ordinary water, and not, as many suppose, to the action of soaps and alkalis. A dye to resist soaping necessarily implies resistance to alkalis, as all soaps are generally certain to contain an amount of free alkali, or else "washing soda," or other mild alkali is added to the washing liquors. Some dyes are particularly "fast" to alkalis, soap and general washing, but which are not so secure to light. Frequently complaints are made against certain colored fabrics, such as shirts, etc., that upon their being washed several times at a laundry show signs of fading, and it is claimed that the dyes used were not as good as the class of goods upon which they were applied. This, no doubt, is true to some extent, but it must be borne in mind that the custom laundry may use certain washing compounds to facilitate its work, and it may be due to these compounds that the character of the coloring matter on the fabrics has been changed. Now this may be true in case a chlorine compound was used, and disregarding any possible injury to the fabric itself, the dye upon it may have been altered to a more soluble chlorine salt, and thereby little by little removed. This is a mere suggestion, but it may throw some light on the case. There are many dyes that are applied to woolen goods, suitings, etc., which may and do resist very effectively the influences of weather, light, etc., but which, owing to their make up, are seldom washed, and yet these very colors include a number which cannot withstand contact with even very dilute organic acids. Now such shades would be directly influenced by perspiration, as all such exudations from the body are of an acid reaction. These few points should suffice to show that a universal "fast dye" is hardly to be contemplated, and for this reason it would be far better, and it would certainly lead to a healthier understanding all around, if the specific properties of each dye sold were given. Two dyers, however, using any one dye upon the same class of goods are quite likely to make use of entirely different methods and yet produce the same results as far as shade is concerned, but there is a strong likelihood that the

results as to fastness may be different. A dye that is universally fast to all tests that dyed fabrics are likely to be put in daily use would certainly be a most desirable substance, but this desideratum is not to be hoped for. Until chemists have produced coloring matters that will form chemical compounds with the fiber substance to which they are applied, we must content ourselves with the best now at hand.

## 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 Maple Leaf Rubber Co. has changed its name to the Queen City Rubber Co., Ltd.

The officers of the Sailmakers' Union, St. John, N.B., this year are: President, Jas. Carr; vice-president, W. Izzard; secretary, A. J. Williamson.

Geo. Bradford, Almonte, Ont., has the masonry contract on the Rosamond Woolen Co.'s new buildings, and will have his part of the work complete by August 15th.

Among the active business men who are off for Europe this summer is William Firth, the well-known importer of textile machinery and president of the American Moistening Co., Boston, U.S.

Geo. H. Hardecastle, foreman of upholstering department of the Ellis Furniture Company, Ingersoll, fell from his bicycle recently while going to work and one of the bones of the right foot was broken.

The Sanford Clothing Co. is spending \$2,000 on improving the shop at Yonge and Adelaide streets, Toronto, formerly occupied by Gowans, Kent & Co. as a retail china shop. A retail clothing shop will be opened by the new owners.

At a recent emergency meeting of the Pictou, N.S., town council, it was unanimously resolved to give a bonus, not exceeding \$5,000, to the Cape Breton Boot and Shoe Company, of Sydney, or any other boot and shoe company establishing its business in Pictou, upon conditions satisfactory to the council.

A. Fennell, employed in the Brodie woolen mills at Hespeler, Ont., had a narrow escape recently. He was leaning against the elevator gate on the fourth flat when the gate became unfastened, precipitating Fennell head first down the shaft, a distance of almost 60 feet. When near the bottom the young man came in contact with the lifting cable, which he grasped, and a second later landed on the top of the elevator, which was still moving downward, thus breaking the fall to a certain extent. His injuries, which were grave, were not at all dangerous.

In a copy of the Hawick Free Press of May 3rd was the following item, which appears under the heading of "Presentations to a Way-Going Callant:" "Walter Marchbank, patent frame-worker, who is leaving for a situation in the factory of Turnbull & Co., Galt, Ont., was entertained by his brethren of the 'Greens' in the Crown hotel on Monday night. Mr. Robert Thompson, president of the club, presented Mr. Marchbank in the name of the club with a Saratoga travelling trunk and a set of gold sleeve links ornamented with cairngorm stones and brilliants. A very enjoyable night was spent with song and sentiment. Mr. Marchbank has also been presented by Mr. Andrew Laniles, on behalf of the hosiery workers in Dickson & Lang's, with a beautiful travelling bag and dressing case."

The new rubber factory building at Port Dalhousie, Ont., is being rushed up by the contractors.

The capital stock of the Mount Forest Woolen Mills Co. will be increased from \$15,000 to \$25,000.

A steam laundry and dyeing and cleaning business has been started at Amherst, N.S., by G. H. Chapman.

J. Young, loom-fixer, Almonte, Ont., has gone to Lanark, Ont., to take a position in T. B. Caldwell's factory.

Moncton, N.B., ratepayers have voted to give A. Humphrey & Son's woolen mills free water for twenty years.

H. Scott, well known in Berlin and Waterloo as weaver and knitter, has gone into business for himself in Waterloo, Ont.

George Pattinson, of the Preston, Ont., Woolen Mills, is building a stone addition, chiefly for storage, 30 x 87, three stories.

The Canadian Colored Cotton Co. has ordered a number of large dyeing machines from the Smart-Eby Machine Co., Ltd., of Hamilton.

S. Greenwood, local manager of the Canadian Colored Cotton Mills, Cornwall, Ont., has gone on a three months' trip to Great Britain.

The Granby, Que., Rubber Co.'s factories are closed in order to put in new water wheels, and build a new flume upon which \$5,000 is being spent.

Duncan McIntosh, Almonte, Ont., has gone to Sault Ste. Marie, Michigan, where he has taken a position as superintendent of a two-set woolen mill.

R. A. Latimer, Oshawa, whose father was at one time in company with M. S. McKay in the woolen mills, Galt, Ont., is now travelling for the Maple Leaf Woolen Mills Co., Markham.

The Eagle Knitting Co., Hamilton, is pushing work on its brick addition, which is rapidly nearing completion. It is a four-story and basement building.

John Donegan, who was an overseer in the Rosamond Woolen Co.'s mills, Almonte, Ont., many years ago, is in Canada on a visit after some twenty years in a woolen mill in Maine.

Recently at the residence of Joseph Allen, Verdun, of the British American Dyeing Company, Montreal, his daughter Anne was married to Wm. Henry, the manager of the Troy Laundry, Montreal.

Negotiations are in progress for the establishment of a big pulp industry at Calumet. Ottawa capitalists have purchased the mills of Alex. Baptiste at that village, and lumbermen state that the limits in this area have been cut for white pine for years, and that there is an enormous quantity of the finest spruce standing.

The municipality of Lachine, Que., has voted a \$13,000 bonus to the Silver Boot & Shoe Mfg. Co. on condition that it will employ 100 persons, of whom forty must be heads of families, and all are to reside in Lachine. The amount to be paid in wages is to be \$30,000 annually.

Chief Justice Armour is bringing action against all the members of the Cobourg, Ont., town council, for having voted in favor of a resolution under which the sum of \$5,500 was paid out of the town treasury to Dick, Ridout & Co., as an inducement for them to go into the woolen business there.

Judge Archibald rendered judgment recently in the case of E. Poirier vs. the Dominion Cotton Mills Company. The plaintiff claimed \$1,999 damages on account of injuries received by a bale of cotton falling upon him, while he was working in the company's service. Judgment was rendered in favor of plaintiff for \$750.

The mills of the Kingston Hosiery Co. are being run full time.

The erection of a pulp mill at Union about five miles east of Truro, N.S., on the Salmon River, is expected to go on at once.

The Union Hat Works Co., H. Boleer and J. C. Saulnier, is said by the St. John's, Que., News, to be doing a large business in that town.

Lester Baldwin's three-set woolen mill at North Augusta, Ont., was completely destroyed by fire last month. The mill will be rebuilt at once.

The oil-cloth printing machines of the Dominion Oil Cloth Co., Montreal, are now equipped with electric motors driven by current from the Lachine Rapids.

M. D. Vail and F. M. Porter are starting up a steam laundry and dye works at St. John's, Nfld. The Robb Engineering Co. is supplying the steam plant.

J. B. A. Lanctot's glove and corset factory, at 152 St. Lawrence street, Montreal, was entered by burglars recently and about \$1,000 worth of corsets, gloves and fans stolen.

Manager Wagon, of the Dominion pulp mill, Chatham, N.B., stated recently the capacity of the mill will, within the course of a few weeks, be increased from 90 to 120 tons per week.

The R. Forbes Co., Hespeler, Ont., is building a new stone water tower, 30 feet square, and 89 feet high, with a tank on top 18 feet in diameter and 15 feet deep, with a capacity of 25,000 gallons.

A. Whittaker, late superintendent of the Magog, Que., Print Works, has severed his connection with the company, and will take a new position in the United States. Joseph Hindle has been appointed his successor.

The sweaters worn by the Argonaut crew, which rowed at the regatta at Henley, Eng., this month, were made by C. Turnbull & Co., Galt, Ont. They have white body and sleeves with light and dark blue collars and cuffs.

We are informed that Geo. Reedy, Barrie, Ont., has been appointed vice-president and manager of the Crompton Corset Company, Toronto. Mr. Reedy has been for a number of years in the dry goods trade in Barrie, and has done well.

E. Cook, Gananoque, Ont., has moved all his woolen machinery to Qu'Appelle, N.W.T., where it has been set up in the Felt Boot Co.'s factory. Mr. Cook will manage the combined plants and will turn out blankets and tweeds in addition to felts.

The Dominion Carpet Co. has received from Sherbrooke, Que., the buildings formerly occupied by the Gardner Tool Co., the money received by the city as insurance on the buildings when burned some time ago, and a cash bonus of 2½ per cent. on the pay roll annually for ten years with tax exemption for that time.

Mullin & Muir, decorators, Toronto, are promoting the establishment of a wall paper factory in Orillia, Ont. The proposed company is to be capitalized at \$100,000, of which \$40,000 will be raised by the promoters, and \$20,000 subscribed by local capitalists. The company would undertake to employ 65 hands, pay out \$40,000 a year in wages, and put up two buildings, one 300 x 65 feet, and another 100 x 50 feet.

The West Indies Chemical Works, for whom Bellhouse, Dillon & Co., Montreal, are Canadian and United States agents, have so extended their trade, and their products have met with such favor by the textile manufacturers that their logwood works at Spanish Town are now being extended. When these extensions are completed the works will have double their present capacity.

The Schofield Woolen Co., Ltd., Oshawa, is installing some new machinery, and will put a line of fleece lined underwear on the market.

Octave Garriety, Lachevrotiere, Que., is rebuilding the dam and improving the water power of his plant. The present dam was built 46 years ago.

F. H. Doyle, designer of the Richelieu Woolen Mills, Chambly, Que., has taken the position of boss weaver for Doughty & Hughton, Arnprior, Ont.

The Sarnia Woolen Mills Co. has recently had installed an electric bell system throughout the mill to call the foreman to the various parts of the building where he may be needed.

The Empire Carpet Co., St. Catharines, is now running full time in its new premises, which have been much altered and improved since they were occupied by the McMillan & Haynes' saw works.

The Narrows of the Tobique River, Andover, N.B., have been surveyed recently by C. LeBaron Miles, C.E., assisted by Edmund Miles and John E. Stewart in connection with the proposed pulp mill; and an hydraulic engineer named Grover, from Oregon, Me., has examined the water power.

J. Matchett and J. Ironside Thomson have gone into business as manufacturers' agents and wool dealers as the Foreign and Canadian Manufacturers' Agency, Traders' Bank Chambers, Toronto. The new firm announces that it will sell to the wholesale trade and to the leading retailers throughout the country.

A. McGregor, J. Walsh and J. Auty, Guelph, Ont., have organized a company to be known as the Standard Carpet Company of Guelph. The premises formerly occupied by McPherson Bros., Norfolk and Northumberland streets, have been leased, and the intention is to manufacture all kinds of ingrain carpet.

The name of the Talbot Brussels Carpet Co., Ltd., has been changed by order-in-council to the Dominion Brussels Carpet Co., Ltd., the chief place of business being Sherbrooke, Que., instead of Montreal, and the capital reduced from \$200,000 to \$100,000. The company expects to have its factory in Sherbrooke in operation in a short time.

A writ has been issued in proceedings to take accounts on behalf of George and H. L. Heath against J. W. Hart, George Paget and the Sturgeon Falls Pulp Co. This concern, formerly an Ontario affair, was bought out by London capitalists. The plaintiffs are shareholders, and they are taking proceedings to find out all about the transaction, how much was paid and what each shareholder received.

The mills of the Boas Mfg. Co., St. Hyacinthe, Que., have been leased by B. Stevens of the Western Loan & Mortgage Co., Montreal, and President Duseault of the Bank of St. Hyacinthe. It is understood that a joint stock company will be organized to operate the mills, and it is said that Vice-President Cannon of the First National Bank, New York, will put \$200,000 into the new company.

Louis Simpson, of the Dominion Cotton Mills at Valleyfield, Que., has been committed to stand his trial by Recorder Papneau of that place, for alleged infraction of Article 126, paragraphs B. F., Criminal Code, for having on the 30th of March last offered Urgel St. Onge, a member of the Town Council of Valleyfield, a commission of 10 per cent. upon the price of sale of a piece of land which Simpson wanted to sell to the corporation for the erection of a fire and police station for \$4,000, a portion of which land was so sold to the corporation on May 13th last.

The strike among the T. Eaton Co.'s cloak makers, Toronto, is attracting very little attention. The newspapers give

little or no information on the subject because, the strikers claim, their advertising columns would suffer, or because, the newspapers allege, the strikers themselves refuse information and exclude reporters from their meetings. They have issued a circular in which they print windy statements about tyranny, etc., of the employer, but carefully refrain from a statement of prices paid which might enable an intelligent grasp of their grievances to be made.

On June 19th the weavers in the Brodie mills, Hespeler, Ont., numbering nearly 200, went on strike over fines inflicted for darning their cloth, which work was performed by girls whose pay was deducted from the weavers' wages. The weavers were willing to bear half the cost of darning. The whole mill was closed down while some repairs were made, and in ten days' time the weavers compromised, the firm offering to pay one-quarter of the darning, and work was resumed.

Walter Miller, manager of Miller Bros' paper mill at Glen Miller, Ont., has bought the mills and water power lately owned by the Sills Bros., Frankford, Ont. There is a large force of men engaged in deepening the channel, building the dam and rebuilding the mill. The equipment consists of six first-class water wheels developing 2,000 h.p. Paper machine (board) 112 inches wide with all modern improvements; three beaters, largest size; two large globe rotary boilers, one pulp grinder largest size. It is expected that the mill will be in operation in early fall.

One of the best known of the founders of Toronto's industries died recently in the person of Charles Boeckh. He was a native of Germany, and was born 82 years ago. As a young man he came to America, first residing in New York, and ultimately coming to Toronto, where forty-five years ago he established the great brush industry which is identified with his name. For many years the firm was known as Charles Boeckh and Sons. A few years ago the deceased retired from the firm, and handed the reins to his sons, who now carry on the business under the name of Boeckh Bros. and Company.

The Court of Appeal has confirmed the judgment of the Court of Review reversing the decision of the Superior Court and dismissing the action in the case of Denis vs. the Granite Mills Co. The plaintiff, in his quality of tutor to a young man named Aubuchon, claimed damages on account of the loss of one hand sustained by young Aubuchon while working in defendant's factory. The young man's hand was crushed by a ventilating fan placed in the window of the room where he was working, and it had to be amputated. The majority of the Court held with the Court of Review that the accident was due to Aubuchon's own imprudence. Judge Ouimet dissented from the judgment of his colleagues.

—Dr. Borden, Minister of Militia, gave a detailed statement of prices paid for clothing and necessaries for the militia, in the House, July 12th. Some of these prices were rather low, and the opposition was inclined to question the quality of the goods. On this point Dr. Borden could not give much information. A lively discussion took place between Mr. Bergeron and the Minister of Militia in regard to the sweating clause in the militia clothing contracts. Mr. Bergeron charged that both Sanford and Company, of Hamilton, and Workman and Company, of Montreal, had violated their contract in this respect. Dr. Borden flatly denied this statement on the authority of one of his officers, whom he had sent to inspect both factories. He stated, however, that the Sanford Manufacturing Co., outside their main contract, had been asked to furnish some clothing in a hurry, required for the annual camp, but they said they could not do it unless permitted under the provision of the old contract. This was allowed.

**FABRIC ITEMS.**

Thorne Bros., St. John, N.B., dealers in hats and caps, have suspended payment. The firm has been in existence some twenty-two years, with a previous good record.

M. L. and R. Schloman, 481 St. Paul, street, Montreal, shirt and overall makers, were burned out July 5th. The insurance on stock was \$55,000 and on building \$11,000.

An assignment has been made by L. J. Nadeau, dry goods, Montreal. He opened out last fall, succeeding Emile Lavinge, who is the demanding creditor. The liabilities are nearly \$25,000.

M. L. Wiessman, who recently started the manufacture of neckwear for the wholesale trade, at 1886 Notre Dame street, Montreal, has left the city, and Herman H. Wolff & Co. have applied for the appointment of a curator to the estate.

The dry goods commission firm of Reeve, Lailey & Co., which has assigned, was formed in Toronto in 1890, eight years later it was dissolved by the retirement of Chas. E. Lailey, and the former continued under the old style.

E. C. Cole & Co., reported to be doing the leading custom tailoring business in Moncton, N.B., are embarrassed, and said to be offering 40 cents on the dollar. The liabilities are stated at \$26,000, about half this amount being due on mortgage.

The assignment is noted of W. J. Bradley, dry goods dealer, Brockville, Ont. It is not long ago that he was reported embarrassed, having arranged a compromise in February last year. He then settled liabilities of \$10,066 at 70 cents on the dollar.

The contracts for the Kingston penitentiary supplies have been awarded by the Justice Department, Ottawa. The dry goods and cloth have been awarded to J. G. Mackenzie & Co. Montreal; J. M. Garland and Wilson Bros., Ottawa, and McNee & Minnes, Kingston.

When Calder & Co., clothing manufacturers, Hamilton, Ont., were having trouble with their garment workers early this year, among others who came to the city from New York to take the place of the strikers was Samuel Stone, who brought with him a number of workmen and started a shop at 12½ Rebecca street. Several times he has been in the Police Court for not paying his workmen their wages. Now he has disappeared, after drawing money from Calder & Co., for his hands, which, however, he did not pay over.

The sale of W. C. Pitfield & Co's, St. John, N.B., bankrupt stock of dry goods, etc., took place by auction July 12th. There were representatives present from Gault Bros., and Vineberg & Co., Montreal; also Halifax, Quebec, Toronto, Fredericton and St. John firms. The stock was offered at 50 much per cent. on the appraised value of \$28,492.77. The first bid was fifty cents. Garland, of Toronto, bid 66½, and then dropped out, and Thibaudeau Bros. & Co., of Quebec, took the whole stock at 67, which is equal to about \$66,000.

Much regret will be felt in the dry goods trade at the death, on the 14th inst., of James Johnston, of James Johnston & Co., importers of English and foreign dry goods, St. Helen street, Montreal. Mr. Johnston was a native of Hamilton, Scotland, where he was born half a century ago. With his widow, who was the second daughter of the late Andrew Robertson, chairman of the Harbor Commissioners, and her family of three daughters and four sons, much sympathy is felt in their bereavement, as well as with the family of the late Andrew Robertson, whose widow passed away only a few days before.

**FOR SALE CHEAP**

One Crompton Loom, has not run much; 21 harness; 4 x 4 shuttle boxes; 48 inch reed space. CHAS. SCHILLING, Auburn, N.Y.

**FOR SALE.**

Woolen Mill in the Province of Quebec, near St. Lawrence River, and on line of railway; substantial stone buildings, both flour mill and carding mill, excellently situated for a large flour, pulp or woolen mill, and having the good will of a large country trade; owner wishes to retire because of advancing age, stone dwelling house attached, and the property in every way a desirable one. Address O. G. P., care Canadian Journal of Fabrics.

**WANTED**—Man thoroughly acquainted with the manufacture of Worsted and Mohair Braids. None but experienced hands in the manufacture of braids need apply. Address No. 6, Canadian Journal of Fabrics.

**POSITION WANTED**—Young man of good education, at present employed as superintendent in a large woolen mill in the south of Scotland, would like similar position in Canada. Can assist in designing. Address "SUPERINTENDENT," care of Canadian Journal of Fabrics, Montreal, Que.

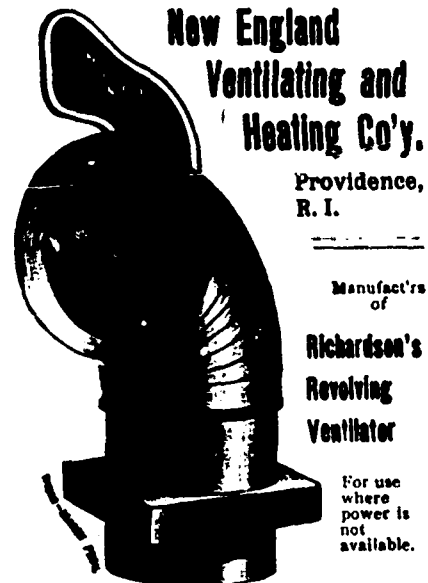
**CAPITAL WANTED.**

By a thorough practical worsted spinner (with small capital), a partner with capital, to start worsted spinning business and weaving worsted goods, in Canada, as there is a good opening for same, with good inducement offered at some places, correspondence confidential, only those with capital need apply. For further particulars address CANADIAN JOURNAL OF FABRICS, Box 7.

**FOR SALE**

**Entire Equipment of Cotton  
... Mill ...**

Spinning, Weaving and Twisting; 8,000 spindles all in first-class condition; cash or part cash and part bonds. For particulars address COTTON MILL, Office of the Canadian Journal of Fabrics.



**New England  
Ventilating and  
Heating Co'y.**

Providence,  
R. I.

Manufacturers  
of

**Richardson's  
Revolving  
Ventilator**

For use  
where  
power is  
not  
available.

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

OFFICE AND WORKS:

926, 928 & 930 Manton Avenue



--Impelled thereto by an expression of opinion in favor of a particular color by a writer in The Pall Mall Gazette, Mr. G. S. Layard has made an interesting enquiry into the respective popularity of colors. He was of opinion that mankind was divided into two camps over color, one party swearing allegiance to red and the other preferring green. A plebiscite of the readers of our contemporary, however, gave a strong majority in favor of blue, which by no means surprises us, in fact Mr. Layard's figures bear out our own opinion that, apart from a possible patriotic leaning to one particular color, the favorite of most people is either blue or red. The result of the poll instituted by Mr. Layard was as follows:

- 32 in every hundred prefer blue.
- 20 in every hundred prefer green.
- 15 in every hundred prefer red.
- 8 in every hundred prefer modified red.
- 7 in every hundred prefer yellow.
- 6 in every hundred prefer modified blue.
- 5 in every hundred prefer pink.
- 4 in every hundred prefer mauve.
- 3 in every hundred prefer a brown.

It will be seen that red really takes the second place. Any textile colorist we think would have prophesied correctly that blue would head the list.

**Dye Stuffs**  
Chemicals

**..Alizarines..**  
DIRECT DYEING  
ANILINES FOR  
COTTON & WOOL

Dyewood Extracts

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

33 Colborne Street,  
TORONTO

15 Lemoyne Street,  
MONTREAL

NEW YORK  
PHILADELPHIA.

**BOSTON.**

CHICAGO  
GLOVERSVILLE, N.Y.

**CHEMICALS AND DYESTUFFS.**

Trade in this department has been fairly active during the month. The only noteworthy change in quotations is in sumac, which has advanced \$10 per ton (from \$60 and \$65 to \$70 and \$75), on account of the amalgamation of European firms in that trade. The following are current quotations in Montreal:—

|                                    |         |            |
|------------------------------------|---------|------------|
| Bleaching powder .....             | \$ 1 95 | to \$ 2 00 |
| Bicarb. soda .....                 | 2 00    | " 2 05     |
| Sal soda .....                     | 0 70    | " 0 75     |
| Carbolic acid, 1 lb. bottles ..... | 0 35    | " 0 47     |
| Caustic soda, 60° .....            | 1 75    | " 1 80     |
| Caustic soda, 70° .....            | 2 00    | " 2 10     |
| Chlorate of potash .....           | 0 13    | " 0 15     |
| Alum .....                         | 1 35    | " 1 50     |
| Copperas .....                     | 0 70    | " 0 75     |
| Sulphur flour .....                | 2 00    | " 2 50     |
| Sulphur roll .....                 | 3 00    | " 3 50     |
| Sulphate of copper .....           | 4 50    | " 5 00     |
| White sugar of lead .....          | 0 07    | " 0 08     |
| Bich. potash .....                 | 0 09    | " 0 10     |
| Sumac, Sicily, per ton .....       | 70 00   | " 75 00    |
| Soda ash, 48° to 58° .....         | 1 15    | " 1 25     |
| Chip logwood .....                 | 1 90    | " 2 00     |
| Castor oil .....                   | 0 09    | " 0 09½    |
| Cocoanut oil .....                 | 0 06½   | " 0 07     |

**A. KLIPSTEIN & CO.**

122 PEARL STREET, NEW YORK.

*Chemicals & Dyestuffs*

Fast Color for Wool—Dry Alizarine, Phenocyanine, Gallocyanine.  
Direct Cotton Colors—Auramine, Congo Red.

Azo Colors—Naphthol Yellow, Orange, Scarlets, Fast Red.

HEADQUARTERS FOR

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

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

**JOHN W. LEITCH & CO.**

Milnsbridge Chemical Works, near HUDDERSFIELD, ENGLAND.

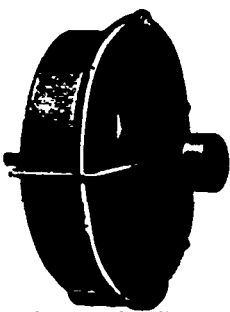
**PHENYLENE DIAMINE (DISTILLED)**  
**TOLUYLENE DIAMINE (DISTILLED)**

**Bismarck Brown, Chrysoidine,** Crystals and Powder. Largest makers in the world.

**Soluble Blues**—all shades.

**Binetro Benzol and Binetro Toluol.**

**Reduced Indigo. Wood & Leather Stains.**  
Specialties for Cotton, Wool and Silk Dyers, Paper Makers, &c



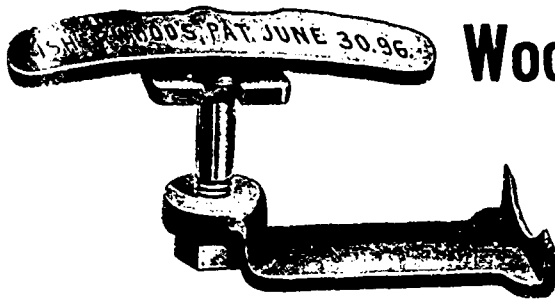
"Improved Disc Fan"

**Fans and Heaters**

For drying of Wool, Cotton, Cloth, Blankets and other materials.  
Fans for ventilating and removing refuse, hot and foul air, etc.  
The Fan system of heating and ventilating large buildings. Write for particulars to

**McEachren Heating & Ventilating Co., Galt, Ont.**

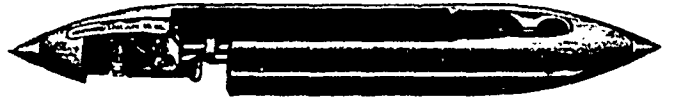
JOHN SHAMBOW, Treasurer.



# Woonsocket Reed & Shuttle Works

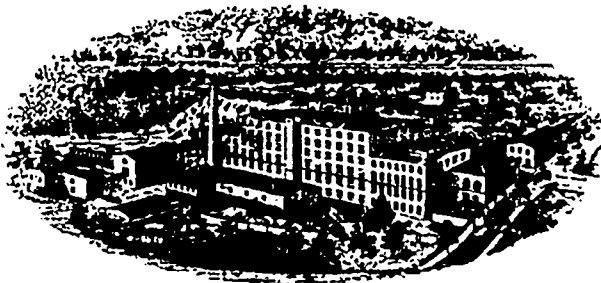
WOONSOCKET, RHODE ISLAND.

Makers  
of  
Every  
Description  
of



## Power Loom Shuttles

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



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

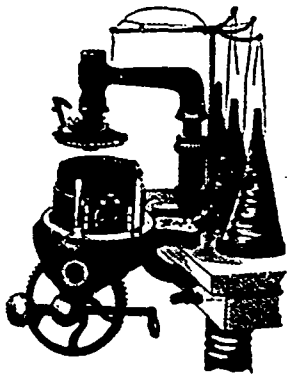
Colors warranted as fast as the best British or Foreign goods

## CREELMAN BROS.

GEORGETOWN, Ont.

Manufacturers of

### Knitting Machines



"THE DOLLAR," Family,  
AND  
"THE STAR," Steam Power,  
AND  
"THE WORLD'S STAR," for  
Knitters

## H. W. KARCH,

HESPELER, ONT.

Manufacturer of  
Woolen Machinery,  
Rotary Fulling  
Mills, Kicker Full-  
ing Mills, Soaping  
Machines, Cloth  
Washers,  
Wool & Waste  
Brushes, Rag Dusters,  
Drum Spool  
Winders, Reels,  
Spooling & Doubling  
Machines, Ring  
Twisters, Card  
Reels,



Dead Spindle Spooler for Warp or Dresser Spools,  
Pat. Double Acting Gigs, Dyeing Machines.

"WE HOLD THEE SAFE."

## The Dominion Burglary Guarantee Co.

LIMITED.

Head Office, Montreal, Can.

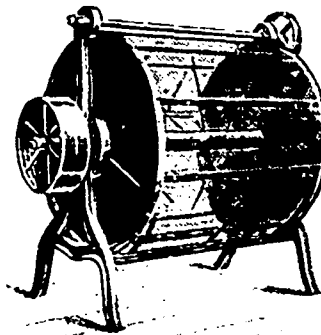
CAPITAL, \$200,000.

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

CHAS. W. HAGAR, General Manager

## PATENT WASTE CLEANER

For Cleaning Woollen Card-Waste.



Does not Damage the Staple

Loses Nothing but the Dirt!

Over 500 at Work.

Price £25 packed at Liverpool.  
Space occupied 5 ft. 6 in. x 3 ft 6 in  
Power required 1/2 H.P.  
Production 1200 lbs. per day.  
Weight packed, 14 cwts

**HENRY SITT,**  
BRADFORD, ENGLAND.

## DICK, RIDOUT & CO'Y

Office—69 Bay Street,

TORONTO.

Works,

Cobourg & Winnipeg.

Manufacturers of

Jute and Cotton Bags

Hessians, Starched and Dyed Jute Canvas.

Jute Binder Twine, Horse Blankets, Etc.

WOOLEN GOODS, TWEEDS, Etc.

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

--The object of an invention patented by a Scotchman, Robert Heggie, is to apply to looms an apparatus which will allow of a design being woven on the cloth independent of or in addition to a standard design which is produced by the ordinary cards and to make provision for the changing of such designs at the discretion of the operator, as for instance, the weaving of an hotel name on a towel, etc. This is accomplished by weaving the figured cloth by means of a main pattern cylinder and cards in the usual way, producing the standard design. When it is wanted to introduce the supplementary design, the cards are disengaged or rendered inactive by punching where wanted and the supplementary design woven in the cloth by means of a special pattern which controls the uprights of the jacquard, such pattern taking the place of the ordinary cards. A complete design can be woven by means of such pattern and that without the aid of the ordinary cards. The pattern cylinder is of suitable diameter and width, and there is given to it a rotary or rotary and transverse motion. On this cylinder there is fixed the required pattern, such being cut out of sheet metal and so placed relatively to the surface of the cylinder that there is a space beneath to allow of the points of the supplementary feelers or needles passing into it.

**W. M. M. YOUNG,**  
 Manufacturer of *Novelty Braids*

For Ladies' Dress and Wrapper Trimmings, Braided and Woven Spool Tapes and Bindings, Tapes for Underwear, and Round Braids, Cotton Banding and Hook Bands.  
 36, 38 and 40 Frankford Ave., Philadelphia, U.S.

## YARNS

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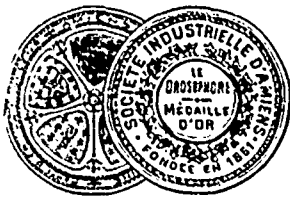
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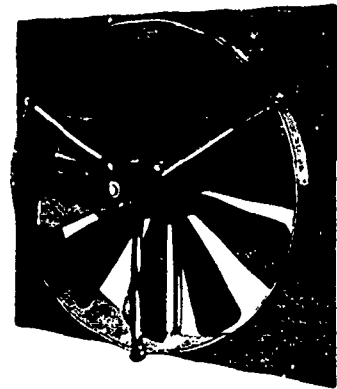
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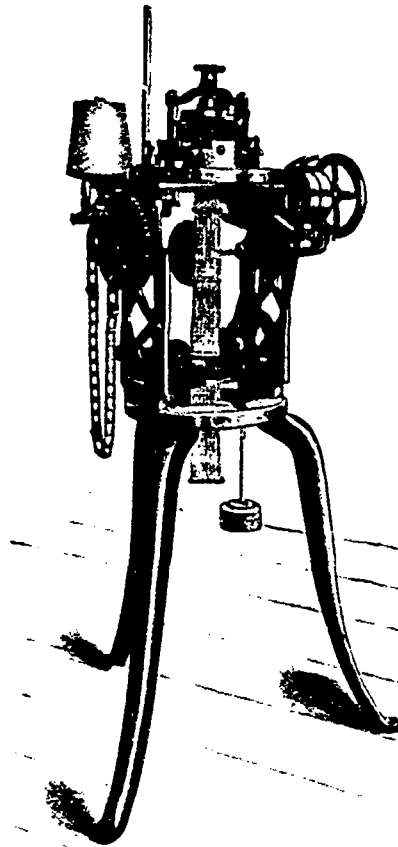
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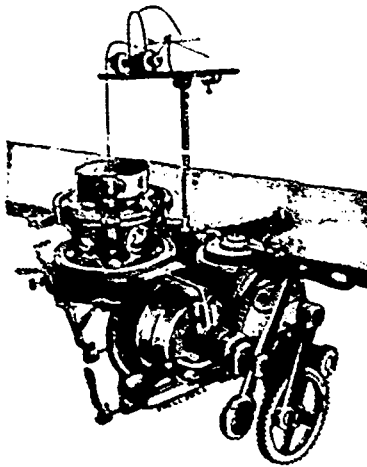
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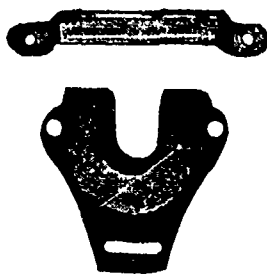
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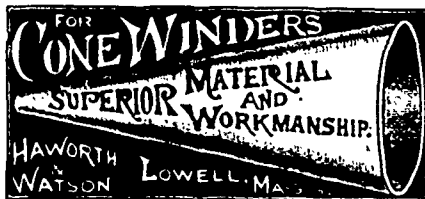
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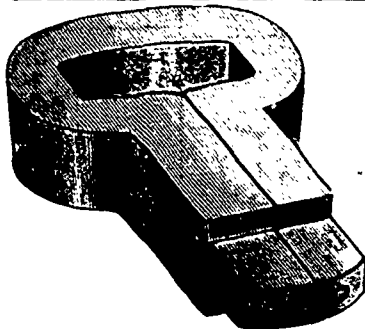


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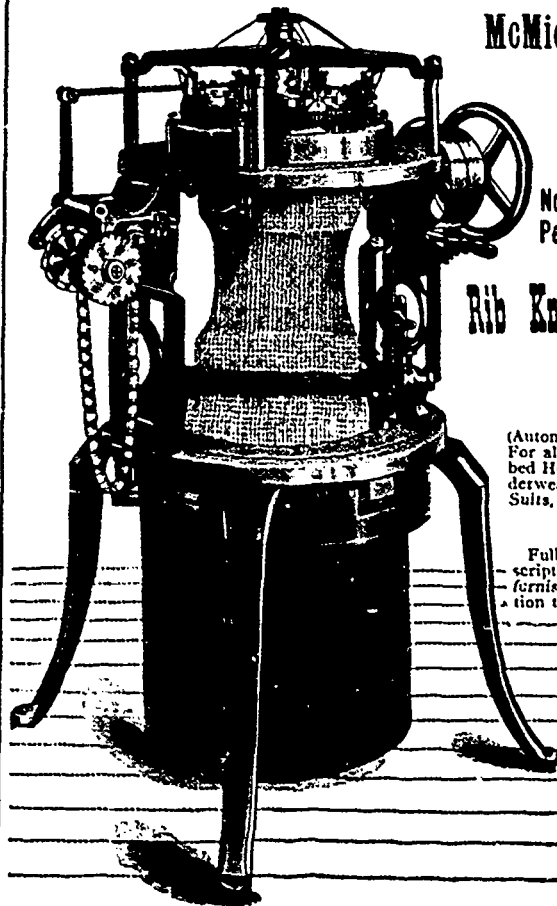
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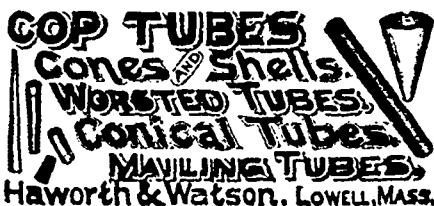
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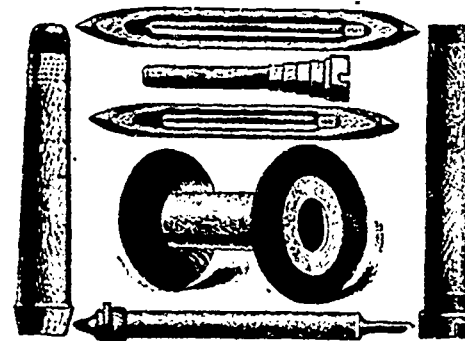
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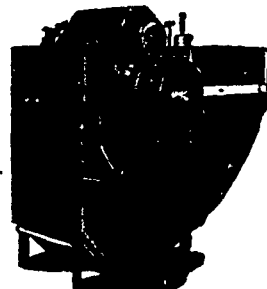
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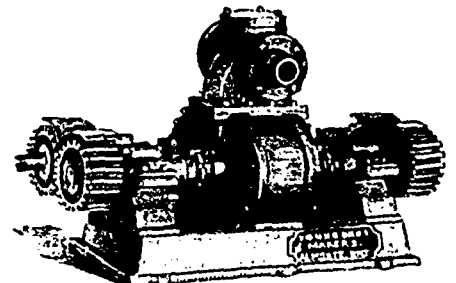
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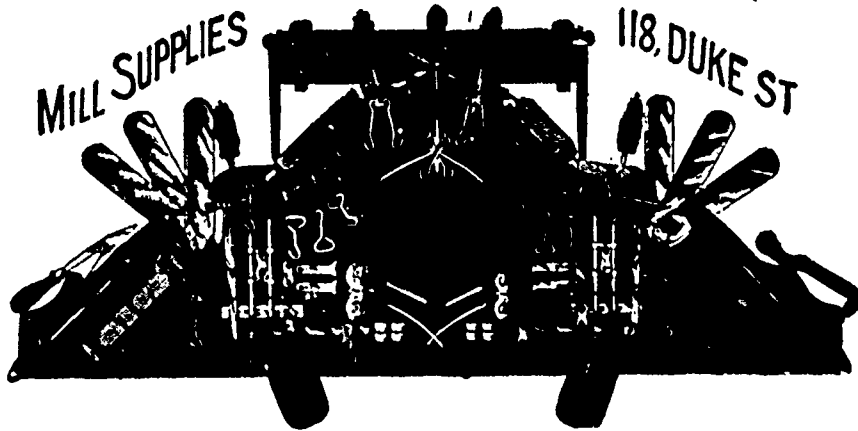


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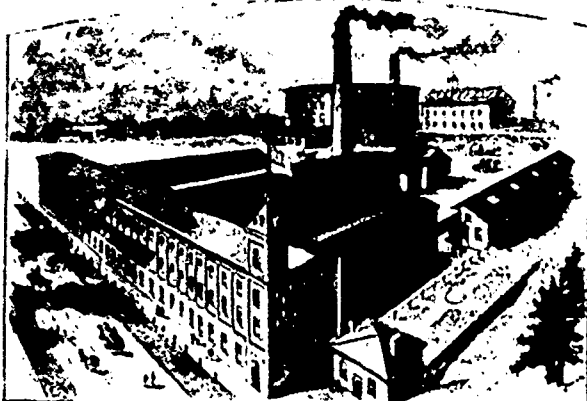
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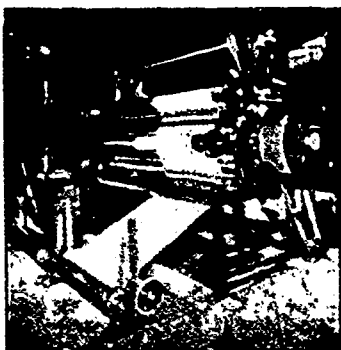
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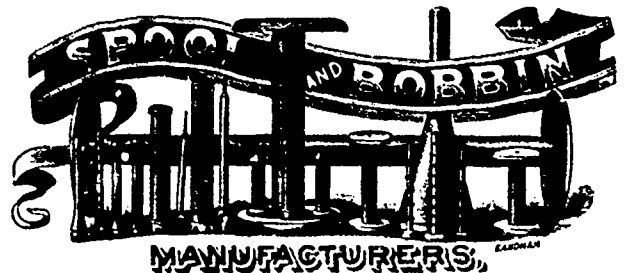


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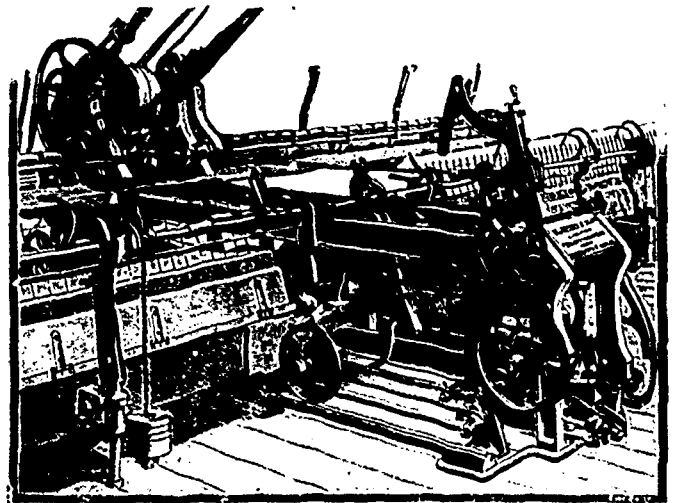
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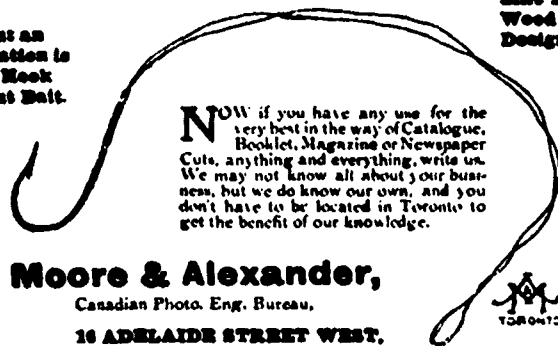
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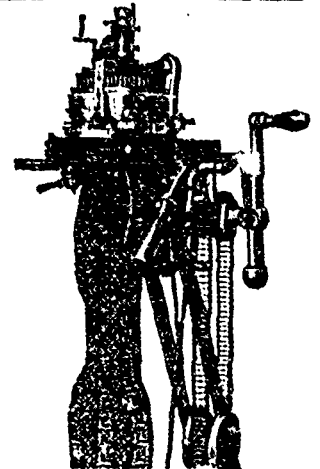
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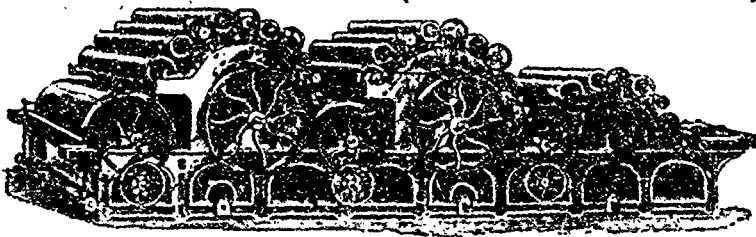
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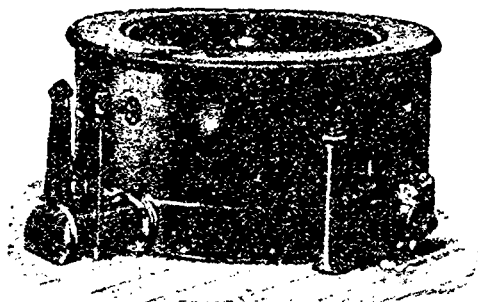
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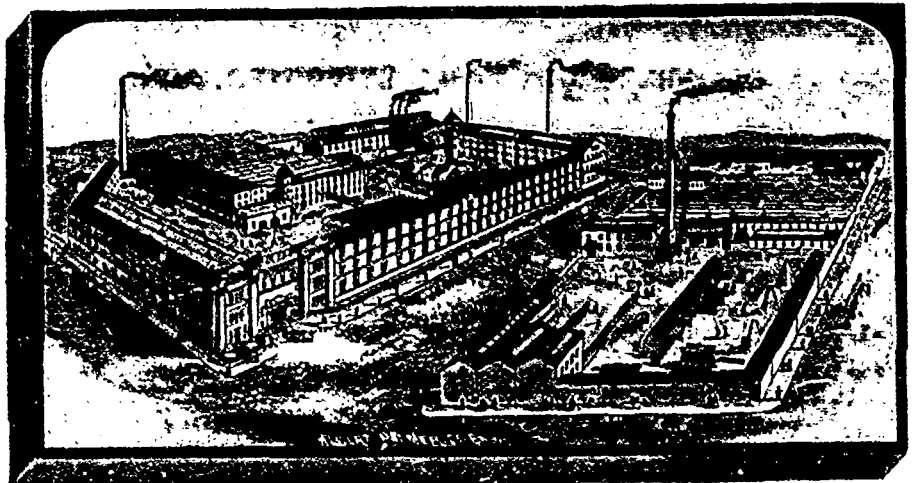
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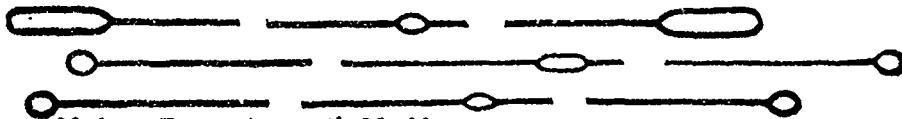
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