Posselt's Textile Journal

A Monthly Journal of the Textile Industries

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ADVERTISING RATES ON APPLICATION.

COPY FOR ADVERTISEMENTS must reach this office not later than the 25th of month preceding date of issue, to insure proper attention.

EUROPEAN AGENTS: Sampson Low Marston & Co., Ltd., 100 Southwark Street, London, S. E., England.

NATL. ASS'N OF COTTON MANUFACTURERS.

The 88th meeting of this association will be held April 27-28, 1910, in the Mechanics Fair Building, Huntington Avenue, Boston, Mass., beginning on Wednesday at 11 A. M., and holding later sessions at 2 P. M. on the same day, and at 10 A. M., and 2 P. M., on Thursday.

Members can obtain their badges near the entrance, which will give them unlimited complimentary entrance to the Textile Fair which will be held in the Building at the same time.

The following addresses and papers are expected:

President's Address.

Welcome to the Commonwealth of Massachusetts, His Excellency, Eben S. Draper, Governor.

Address, Richard C. Maclaurin, Sc.D., President Mass. Inst. of Tech.

Aboriginal Cotton Fabrics, Buying and Handling of Steam Coals, Certain Aspects of the Export Trade, Choice of Power for Textile Mills, Committee on Standard Specifications, Distribution of Light in Illuminated Textile Mills, Electric Drive as a Manufacturing Proposition, Federal Corporation Tax Law, General Dyestuffs, Production Increasing Methods, Progress of the Diesel Engine, Sizing and Finishing of Textiles, Superheated Steam and Superheaters, Recent Developments in Cotton Dyestuffs.

Re-orders on heavyweight woolen and worsted suitings are making their appearance on the men's wear market. Because of the limited quantity of worsteds contracted for early in the season a large amount of duplication on these is expected.

A REVIEW OF THE MEN'S WEAR TRADE.

A fair amount of business has thus far been secured on heavy weights, but far from the standard.

Throughout the industry, a considerable amount of worsted and carded woolen machinery remains idle, and, it is thought that the greater part will remain so until a turn in the market occurs, which is not looked for at an early date.

The condition of the trade is a serious problem, as it presents so many different sides. Some mill agents are very much elated over their success with the fall season, but the majority cannot feel satisfied with their progress.

It is everywhere apparent that the large corporations have secured the business and anticipate receiving large repeat orders, while the small manufacturer continues his struggle for orders, with renewed energy. This however not only applies to the small manufacturers, but it is also apparent among some of the larger individual woolen manufacturers which have been comparatively successful in former years, but now find it a very tough proposition to compete with the large corporations.

A number of methods have been pursued in trying to land some of this business, and, in some cases, it has come out well, but the instances are few.

An instance of this is shown in the way a certain mill attempted to have the unsatisfied buyers take a firm hold on their lines, by bringing out supplementaries of inferior stock and at very attractive prices. These cases were very much apparent among the carded woolen manufacturers, some of which tried the cheaper grades of foreign wools in order to shade the price. While the efforts in this direction were well meant, very few buyers were interested, as they desired to confine themselves to the original fabrics.

From the general appearance of the stocks, it is evident that the light weight woolens have the run and the supply of fancy worsted piece dyes is far in excess of the demand. Buyers have scoured the market for medium priced, light weights, but in vain.

In view of this, it has been voiced by some that worsteds will have to be reverted to, and that some houses have been advised to this effect. The worsted factions claim that it is impossible to spin a woolen yarn down fine enough to make a lightweight, unless at a sacrifice, in medium or low-priced stock. In better goods it can be accomplished, but then the price is raised to the point of preclusion. The worsted faction is depending on the warm weather for a turn in the market, their contention being that while woolens have the vogue, their apparent bulkiness will be against them in very warm weather, and that if the situation is properly handled, worsteds will return in a short time.

Plain and fancy serges are also in demand, a number of mills having booked large orders during the last few weeks.

The colors having the call are light brown and its variations, blue and gray mixtures still maintain their popularity, in some cases the mills being unable to meet the demand in this line.

Beautiful soft tones in grays and striking designs in hairline effects of black and white are commanding attention.

Green is entirely out of question, buyers passing it by, as well as the novelties along the line of inconspicuous over-plaids. Among the trade, it is considered dead, although it is *the* thing abroad and a demand may spring up for it a little later on.

A Review of the Silk Trade.

The demand for broad silks still remains sluggish, although in some lines a decided increase in business is noted, but as a whole, the situation is unchanged. The staple lines continue to move slowly.

The fault is laid primarily to the buyers, who seem to be in quandary as to what line to purchase.

It is safe in saying however that Crepês will be among the best selling fabrics next fall, and it is said in the market that very large orders have recently been given for this line, but at rock bottom prices.

These convictions are further strengthened, in as much as certain mills have recently purchased large quantities of Canton raws, and should the market run as it is supposed it will, a number of manufacturers will turn their available machinery on this line, although a number of them have stated that no matter how the market goes, they will not bother with Crepês, but will devote their attention to staple lines, such as satins and taffetas.

Shantung's, which have had the run, are gradually giving way to Changeable's, which it is thought will find great favor in the fall trade. It is not expected these goods will be made speculatively to any great extent, as their value shrinks remarkably if fashion is not in favor, but from present indications it looks as if the outcome is certain. Buyers are already manifesting a desire to get these goods and are placing orders for immediate delivery.

The demand for printed foulards is good, although there seems to be a tendency among some of the houses to cut prices which tends to upset the market.

It is said, that so great has been the demand for this class of goods that it will prove a popular line during the Spring 1911. So firmly satisfied are some converters that contracts have been made for gray goods to be delivered the latter part of this year.

Considerable curiosity is being manifested with reference to rough goods and manufacturers look forward to large orders at an early date on the arrival of summer weather.

The staple lines of ribbons have improved somewhat, but the majority of business that has been done has been at so close a margin that the manufacturers do not feel like talking about it.

The buyers have arrived at no definite point as to what they want; the mills are anxious for business with the result of a very keen competition, with prices very irregular and in some instances devoid of any profit.

Manufacturers are looking forward to the extensive use of silk ribbons for hat trimmings as the season progresses, which at the present time seems very apparent.

Plain taffetas are now most in demand, while inquiries have been made for warp prints, which seem to appeal favorably.

Buyers are putting the matter off, until after May 1st., as they think that then the market will become settled.

At the annual meeting of the Silk Association of America, held Tuesday afternonon, March 22nd., at the offices of the association, the following officers were elected: President, Jerome C. Read; first vice president, Charles Cheney; second vice president, David Valentine; third vice president. H. Schniewind, Jr.; treasurer, Charles F. Homer. The secretary will be chosen, pursuant to the by-laws, at the next meeting of the association. Annual reports on trade conditions, difficulties and remedies were then submitted by the treasurer and the representatives of the several divisions of the industry, as follows: Raw silk, Alfonso Villa; Thrown silk, Peter R. Rowson; Sewing silks and Twists, George P. Richardson; Broad silk, George A. Post; Tie silks, B. Edmund David; Piece dyed silks, H. Schniewind, Jr.; Ribbons, John E. Cowdin and M. W. Dippel; Knit goods, George McCallum; Skein dyeing, Charles L. Auger; Piece dyeing, Printing and Finishing, Albert Blum; Silk machinery, Grant Sipp; Manufacturers' Agents and Commission houses, Samuel Kridel. After these reports were submitted memorial resolutions were passed for George Frederick Vietor and John S. Cheney, who died recently.

Looking Ahead to Spring 1911.

The handicap which a number of worsted houses experienced this past season is attributed to a number of causes. One thing that is given consideration is that during the past season the spinner maintained two prices, one the schedule contract price and the other at which he would do business. It was this fact which kept many manufacturers out of the market as they failed to discount the situation and range their prices accordingly, but it is apparent that they will look at it in a different light for the spring 1911.

The general feeling is that worsteds will be much lower in the spring and that the remaining portion of this year will witness a general return to favor, and this in such a volume that it will have a strengthening effect on prices.

This view of the situation is further strengthened by the action of a certain agent, whose view of conditions is considered conclusive and who in giving instructions to the mills, advises those making woolens to feature those for the 1911 spring season, below 90 cents a yard, for it is his opinion that one spring season of woolens would satisfy the demand and that the tumble that the market will take, will make it possible to put worsteds in the market at prices which would prove more attractive and be a bad competition for woolens above $1.

There is one point which stands in the way of this plan working out, and that is, if worsted yarn spinners insist on high prices when the turn does come, they will operate to disadvantage and it will postpone the return of worsteds until a later date. It is apparent, however, that one season like the past will be sufficient and that the spinners will act with consideration.

From what has been gleaned from the markets, the color ranges will be confined to browns in their variations of bronze, mahogany, Havana, etc.; blues; black; possibly gray and green, the latter being worn to a great extent abroad, but is dead here this season.

Observation of Ladies Dress Goods Trade.

The demand for cheviots has assumed marked proportions and those mills with a reputation on this class of goods anticipate a large business.

Small check designs are in favor, and at the same time are being worn extensively abroad.

The demand for royal-blue, ibis-red, empire-green and brown, in all its varieties, are the fabrics in the lead.

Heard in the Yarn Markets.

Buyers are unconcerned in the course of the cotton yarn market. They have a supply sufficient for their immediate needs and ignore contracts submitted by mills who are anxious to keep their stocks down. Salesmen have been told that it is useless to make offers of yarns, as the difficulty lays in the fact that the business on finished fabrics does not warrant the purchase of additional yarn.

Eastern mills are pressing hard for business and have made concessions in prices, but are not so eager for business at the low prices offered, that they will take anything. Some think that an improvement in the market will be felt the latter part of this month.

Worsted yarns are irregular, and spinners are withdrawing in hope that the next season will offer an opportunity to work to better advantage. An early start of generous ordering is looked for, that will eventually lead to, at least, a normal volume of trade for the whole heavy weight season. Spinners of worsted knitting yarns for the hosiery and sweater trade are well employed.

In view of the apparent opposition which has developed in Germany against the American Exposition to be held in Berlin during the coming summer, the American Executive Committee has decided upon a postponement until 1911.

The members of the Executive Committee, and the gentlemen who agreed to serve on the Advisory and other Committees, did so for the purpose of showing their good will toward Germany and German interests, and to promote the commercial relations between the two countries, and in anticipation of similar cooperation on the part of the commercial interests of Germany, and for no other reason.

As apparently this is not entirely understood, the members of the Executive Committee are of the opinion that it might be advisable to make the Exposition a German-American affair, in which both countries should participate, and thus prove it is not intended to be an American industrial invasion. With this object in view, the majority of the members of the Executive Committee will visit Berlin in the coming summer, for the purpose of bringing about, if possible, such a German-American Exposition, and the United States Government has been requested to continue the Honorary Commission which was appointed to represent it at the Exposition this summer.

Jamestown, New York, is planning to celebrate its Centennial. The thriving textile city on Lake Chautauqua will devote a week to this celebration, beginning on August 29th and ending on September 4th. While a special effort is being made to induce all former Jamestowners, together with those who have visited the city and the Lake Chautauqua region, to return for the celebration, it must not be inferred that this Centennial is to be a mere home coming week.

In view of the prominence of the city in the textile industry, a movement is under way to place emphasis upon this feature in the life of the community.

In addition to the industrial exhibits, it is expected there will be a parade of floats showing the development of all lines of industry in Jamestown during the past one hundred years. The Mayor has named a number of representative citizens to act as the Jamestown Centennial Committee, and Frank E. Wallace has been designated as Executive Secretary with offices in the Gokey Building, Jamestown, N. Y.

NET SILK YARN CALCULATIONS.

By J. H. Fitzgerald.

Net Silk Yarns are numbered either by the *dram* or the *denier* system, except with very coarse silk, used for other purposes than usual weaving or knitting, and which silk yarn is graded by the *ounce* system.

Numbering the silk as to counts is usually done by weighing the skein or hank of silk on a sensitive scale, graduated to drams or deniers, ofttimes both, the indicator being graduated on each side of the centre respectively.

After ascertaining the weight of the test skein or hank, the length having been determined beforehand, the count is found.

Dram System. This is the most frequently used basis for grading the silk yarn. In connection with it, skeins or hanks of 1000 or 500 yard lengths or their multiple are reeled off for testing purposes.

The dram system is based on the weight of 1000 yards of silk yarn, expressed in drams. For instance, take a skein or hank of 1000 yards, and its weight should be found to be 4 drams, it would be known by the trade as a 4 dram silk. If, again, a skein contained 500 yards of silk and weighs 3 drams, such silk is then known as 6 dram silk. The calculation is arrived at thus: 500 yards $\times$ 2 = 1000 yards, the standard hank for calculations, and 3 drams $\times$ 2 = 6 drams; the equivalent weight for a 1000 yard skein = 6 drams silk.

16 drams = 1 ounce, 16 ounces = 1 lb., and 256 drams = 1 lb.

The size of yarn, whether graded by the dram or the denier system of numbering, is always given for their *gum* weight; that is, their condition before boiling-off, in which latter process yarns lose from 15 to 28 per cent, according to the class of raw silk used (China and Canton silks losing the most, Japan silk less and Italian silks the least), as well as whether the silk was thrown bright, or was washed, and what quality of soap was used in the latter process.

It is a well known fact that no two skeins of silk yarn will always weigh exactly alike, chiefly caused by irregularities in the filaments of the cocoons, as well as the unavoidable irregularities in the raw silk thread caused at the reeling, by the threads running out, etc.

For this reason, in order to arrive at a standard count of a lot of silk yarn, an average must be obtained.

In order to determine the correct count of a lot of yarn under consideration, a number of skeins are taken at random from the lot, weighed and an average calculated. For instance, let us consider that five (5) testing skeins of 250 yards each, were reeled off from each skein picked at random.

After each skein has been carefully weighed on a *Troemner* Balance, the calculations show that:

One	skein.....	weighed	1.1	drams
"	"	"	1.	"
"	"	"	1.15	"
"	"	"	1.05	"
"	"	"	0.95	" or
Total weight of the five skeins....			5.25	drams.

The test case being based on 250 yard skeins, the standard skein calling for 1000 yards, we must in turn multiply the 5.25 drams by 4 ($250 \times 4 = 1000$) and in turn divide the result by 5 (on account of the five skeins tested).

5.25 drams $\times$ 4 = 2100 drams, and

2100 drams $\div$ 5 = 4.2 drams, and which is the average weight of the lot of silk yarn under consideration.

The Denier System. The denier system of numbering silk is based on the weight of a skein of silk of the standard length expressed in units of weight called deniers, thus a 10-denier silk means that a standard skein of this silk weighs 10 deniers. The length of the standard skein is 476 meters, (about 520 yards, 20 inches) this being the nearest equivalent to the old standard of length, 400 Paris ells or aunes. The unit of weight, the denier, so named from an old Roman coin once used as a weight, is the equivalent of the old Paris grain, once used in France, but now practically obsolete. The Paris grain is lighter than our standard grain, 7000 standard grains (one pound avoirdupois) being equal to 8530.5549 Paris grains, therefore the denier is less than a standard grain, one denier weighing 0.8194 grains (0.0531 grams) or about 533.16 deniers to the avoirdupois ounce. As will be readily understood, the silk of commerce is not made up into skeins of the length just mentioned, or of any uniform lengths, a skein of the standard length (476 meters) is reeled off and used for determining the weight and count of the silk, the number of deniers that this test skein weighs being the count of the silk being tested. Proportionally, smaller test skeins may be used.

Calculations given with reference to the denier in the article are based on those adopted by the London Silk Conditioning House; and those with reference to the origin of the denier, as to its weight, being based on the researches of Dr. Ure.

At the same time it will be advisable to mention that some mills consider the denier to be a skein of silk, 450 meters long (about 500 yards), wound in 400 turns on a reel of 112½ centimeters in circumference (about 44"), and weighed by a unit of 5 centigrams, about 7¾ grains (called Denier). The length of silk, according to these calculations, in a pound of one denier size will therefore be 4,464,528 yards. This figure divided by the number of deniers that any silk may be in size, gives the yards per pound that it measures.

We have given the latter item more in particular, since there has always existed a dispute as to calculating silk by the denier system, hence the advantages of calculating by the dram system and where no difference exists.

As was explained in connection with the dram system, no two skeins will always weigh exactly alike. In connection with the denier system, in order to indicate such variation in a lot of silk under consideration, the adopted custom is to express this difference in the count of the yarn.

For example, if

one test skein indicates..... 14 deniers
" " " " ..... 15 "
" " " " ..... 16 "

such a yarn is then known as 14/16 denier silk, *i. e.*, a silk yarn in which the skeins vary between 14 and 16 deniers.

Considering the average weight of the test skeins as a basis, *i. e.*, 15 deniers, and the weight of the denier being 533.16 to the ounce, we will have

533.16 $\times$ 16 = 8530.5549 deniers to the pound avoirdupois, and 8530.5549 $\div$ 15 (denier weight of silk) = 569.0366 standard test skeins; counting 520 yards, 20 inches to the skein, we therefore have 520 yards, 20 inches $\times$ 569.0366 = 296,215.16 yards, in one pound of 15 denier silk.

Nothing finer than 8/10 denier silk occurs in practical work, and this only with extra fine fabric structures.

It may be well to note that with silk, the process of numbering the same, *i. e.*, ascertaining its count, is reversed to that of grading wool, worsted, cotton or linen yarn, when then the number of hanks (or test skeins, as we can consider them) required to balance one pound, indicates the count or number of the respective yarn.

(To be continued.)

Fabric Stretching Roller for Silk Looms.

The purpose of these stretching rollers as are used in connection with silk weaving, is to smoothen out the woven fabric in its width, previously to it being wound onto the cloth roller of the loom, in turn pre-

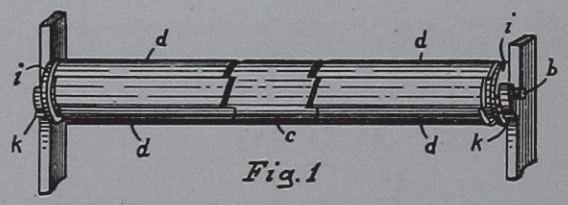


Fig. 1

venting all chances of wrinkles or folds being formed to the detriment of the woven fabric. The inventor of the new roller, Mr. C. Kromer, claims for the same, a more simple construction as compared to the kind of stretching rollers now in use, reducing at the same time, their cost more than one half.

In order to be able to more clearly explain the construction and operation of the new roller, the accompanying plate of illustrations is given, and of which Fig. 1 is a perspective view of the roller, showing the surface slides as actuated by cams. Fig. 2 is a longitudinal section of one end of the roller, showing the pintles or short shafts on which the roller rotates, also the cam and guide plates for the slides. Fig. 3 is a view of one end of the roller with the slides removed, showing the wood core of the roller with its guide plates, cam and parts of the fixed centre portion. Fig. 4 is a diagrammatic view of a loom showing the application of stretching rollers, in connection with suitably located guide rollers and the cloth roller.

a is the core of the roller, made of wood, and *b* a shaft driven into each end of the same; the roller is polygonal in cross section, the number of sides of this polygonal core depending upon the size of the stretching roller.

The middle portion *c* of the roller is made round, of the size of the finished roller and finished with a polished surface, while the surfaces of the slides *d* are covered with felt. The edges of the middle, *i. e.*,

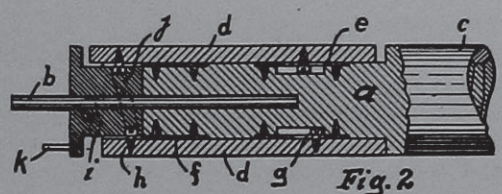


Fig. 2

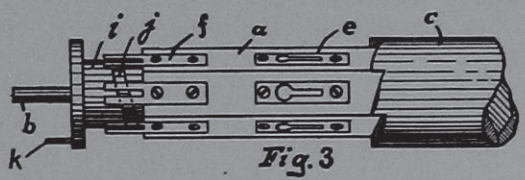


Fig. 3

solid portion *c* of the roller are serrated to fit the ends of the slides *d*, which are cut at an angle to prevent the impression of a straight line on the cloth, also to facilitate the stretching. To hold and guide slides *d* in their longitudinal movements along the sides of the polygonal core *a*, guide plates *e* and *f* are provided, the same having slots to receive the heads of the screws *g* and *h*, as are secured to the slides *d*.

To move the latter, cams *i* are loosely mounted on the shaft *b* and the heads of the screws *h* engage the groove *j* of cam *i*. The cams (one on each side of

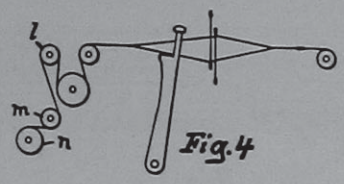


Fig. 4

the roller) are prevented from turning by the pins *k* protruding from the face of the cams and impinge against the framing of the loom. The cams can be set with regard to the position of the slides *d* coming into contact with the cloth, and for this purpose tapped holes are provided in the face of the cams, so that the pins *k* can be secured in any of them to obtain the movement of the slides outward from the centre of the cloth when such slides are brought into contact with the cloth, and to move in the opposite direction to their initial position when the slides are free of the cloth.

Fig. 4 shows diagrammatically, the application of two of these stretching rollers to a loom, and from which it will be seen that the top roller *l* is in such a position that the cloth covers about three-fourths of its circumference, and the slides *d* can effectively operate upon the cloth for the purpose of stretching and smoothening the same, before it is partly wound around the other stretching roller *m* previously to winding onto the cloth roller *n*.

Directory of Trade Marks.

(*Continued from page i.*)

7. Long Cloth.—Sherman & Sons Co., New York.

8. Knitted Union Suits, Shirts and Drawers.—Henry Newell Palmer, New York.

9. Ladies' Cloaks and Outer Suits.—Lazrus Cohen & Co., New York.

10. Girls' Dresses.—Louis Sonn & Co., New York.

11. Cotton Handkerchiefs not in the Piece.—Tootal Broadhurst Lee Company, Ltd., Manchester, England.

12. Cotton Sheetings. — Quinn-Marshall Co., Lynchburg, Va.

13. Poplin Piece Goods.—Reiling & Schoen, New York.

14. Garter Webs and Hair Nets.—Poirier & Lindeman, New York.

15. Overcoats, Ulsters, Rain Coats and Automobile Coats.—Heidelberg, Wolff & Co., New York.

16. Worsted Piece Goods and Cotton Piece Goods.—A. H. & F. L. Sayles, Pascoag, R. I.

17. Broad Silk Piece Goods.—Duplan Silk Co., New York.

18. Handkerchiefs.—Ottenheimer & Co., Chicago, Ill.

19. Ladies' Outer Waists and Ladies' Shirt Waists.—Abraham Solomon, New York.

20. Ladies', Childrens' and Men's Hosiery.—Kahn & Frank, New York.

21. Rugs and Carpets.—M. J. Whittall, Worcester, Mass.

22. Girls' Dresses.—Louis Sonn & Co., New York.

23. Mercerized Bleached Cotton Damask Napkins.—Edward F. Rice & Co., Millbury, Mass.

24. Hosiery.—Jonesville Manufacturing Company, Jonesville, S. C.

25. Sheetings in the Piece, and Sheets, Pillow Cases and Bolster Covers made therefrom.—The New York Mills, New York Mills, N. Y.

26. Coal Tar Dyes.—Farbenfabriken of Elberfeld Co., New York.

27. Athletic Undershirts, Knee Drawers and Union Suits.—Maryland Oiled Clothing Company, Baltimore, Md.

28. Linen and Cotton Piece Goods.—Turner, Halsey Co., New York.

29. Coats for Ladies, Men, Boys and Children, and Overcoats for Men.—Hayman Freedman, New York.

30. Hair Nets.—Poirier & Lindeman, New York.

31. Artificial Silk Thread.—Fabrique de Soie Artificielle d'Obourg, Obourg-lez-Mons, Belgium.

32. Piece Fabrics of Silk.—Atuyer, Bianchini, Férier & Cie., Lyon, France.

33. Work Shirts, Overalls and Work Jackets.—Reliance Manufacturing Company, Chicago, Ill.

34. Ginghams.—Harris-Lipsitz Company, Dallas, Texas.

35. Rugs.—People's Outfitting Company, Detroit, Mich.

36. Linen Thread.—Lindsay Thompson & Co., Ltd., Belfast, Ireland.

37. Neckwear, Belts, Suspenders and Wearing Apparel.—Susquehanna Silk Mills, New York.

38. Dress Shirts and Negligée Shirts.—Elias Bros. & Co., New York.

39. Cotton Duck.—Consolidated Cotton Duck Company, Baltimore, Md.

40. Hosiery.—Jonesville Mfg. Co., Jonesville, S. C.

41. Sheetings and Tickings.—G. A. Stafford & Co., Greenwich, Conn., and New York.

42. Petticoats made of Textile Fabrics.—Younker Bros., Des Moines, Iowa.

43. Wearing Apparel.—Susquehanna Silk Mills, New York.

44. Dress Skirts.—Simon Shapiro, New York.

45. Girls' Dresses.—Louis Sonn & Co., New York.

46. Cotton Handkerchiefs not in the Piece.—Tootal Broadhurst Lee Company, Ltd., Manchester, England.

47. Cotton Piece Goods.—Brandon Mills, Greenville, S. C.

48. Knitted Athletic Goods.—E. Klein & Co., New York.

49. Clothing.—Hamburger Bros., St. Louis, Mo.

50. Corsets.—Bay State Corset Co., Springfield, Mass.

51. Overalls.—The Union Special Overall Co., Cincinnati, Ohio.

52. Knit Shirts and Drawers.—Tiffany Brothers, Bennington, Vt.

53. Mercerized Spool and Sewing Cotton Thread.—B. London & Sons, New York.

54. Handkerchiefs.—Herrmann, Aukam & Co., New York.

55. Men's, Women's and Children's Knitted Undershirts, Drawers and Union Suits.—Gutman Bros., New York.

56, 57, 58 and 59.—Poplin Piece Goods.—Reiling & Schoen, New York.

60. Comforts.—The Pittsburg Dry Goods Company, Pittsburg, Pa.

61. Silk, Woolen and Cotton Piece Goods and their mixtures.—Seydoux & Cie., Paris, France.

62. Clothing.—The Plaut-Butler Co., Cincinnati, Ohio.

63. Linen Thread.—Lindsay Thompson & Co., Ltd., Belfast, Ireland.

64. Veilings, Nettings, Maline, Tulle and Chiffons.—Daniel Strauss, New York.

65. Silk and Cotton Piece Goods and such as made partly of Cotton and partly of Silk, Linen, Wool, Worsted, Ramie or Artificial Silk.—Kraft & Cutter, New York.

66. White and Colored Dress Goods made of Cotton, Silk, Linen or Wool or any combination of any two or more of such Articles.—E. McKittrick & Co., New York.

67. Cloaks, Suits, Jackets, Coats, Skirts and Dresses for Women, Misses and Children.—The Cohn Goodman Company, Cleveland, Ohio.

68. Wearing Apparel for Men, Women and Children.—Edouard Leurent, Tourcoing, France.

69. Silk Piece Goods.—Atuyer, Bianchini, Férier & Co., Lyon, France.

70. Handkerchiefs.—Herrmann, Aukam & Co., New York.

71. Negligée and Work Shirts.—Yankee Shirt Co., New York.

72. Silk in the form of Piece Goods.—Belding Bros. & Co., Rockville, Conn.

73. Silk Piece Goods.—Atuyer, Bianchini, Férier & Co., Lyon, France.

74. Hosiery.—Nathan Washington Rohr, New York.

75. Hosiery.—Harris-Lipsitz Company, Dallas, Texas.

76. Woven Cotton Plaids.—Neuss, Hesslein & Co., New York.

77. Ribbons.—Murphy Grant & Co., San Francisco, Cal.

78. White and Colored Dress Goods made of Cotton, Silk, Linen or Wool, or any combination of any two or more of such Articles.—E. McKittrick & Co., New York.

79. Worsted Piece Goods and Cotton Piece Goods.—A. H. & F. L. Sayles, Pascoag, R. I.

80. Cotton Piece Goods.—Fred Butterfield & Co., New York.

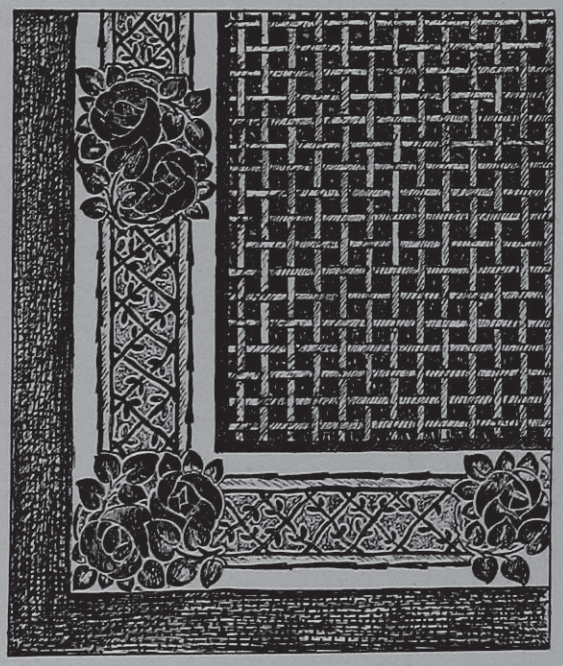
81. Drills.—Cheswell Cotton Mills Co., Westminster, S. C.

82. Hosiery.—A. B. Andrews Company, New York.

83. Handkerchiefs.—Herrmann, Aukam & Co., New York.

New Design for a Carpet.

The same has just been patented by William Murray Morton, of Hastings Square, Darvel, Ayrshire,



Scotland. The design, as will be seen, comprises a border, the main feature of which is a treatment of rose groups placed on a band composed of trellis sprigs and a ground filling formed of lattice work.

DICTIONARY OF TECHNICAL TERMS RELATING TO THE TEXTILE INDUSTRY.

L

LAC DYE:—A color of the same class as cochineal, consisting of small parasitical insects *(Cocus ficus)* united together by a resinous matter exuding from the twigs of the trees which they inhabit. A good lac should be soft, so as to be broken by the fingers. The fracture should not have a shining resinous appearance, and should give out a strong peculiar odor. If it be very hard, with a resinous fracture, it contains a large amount of shellac.

LACE:—An open perforated fabric produced by the threads of which it is composed being twisted together in such a manner as to form patterns. The threads may be twisted either two, three, or more together, or thick and thin threads may be so combined.

There are two kinds of lace—point and pillow. Point or needle made lace is said to have been invented by the Italians at a very early period, and during the sixteenth and seventeenth centuries became of very general use in England. Pillow lace is of more recent date, and Beckman asserts that the knitting of lace is a German invention, "found out before the year 1561, at St. Annaberg, by Barbara, wife of Christopher Uttman." The statement does not appear to have ever been disproved.

LACE CLOTH:—A light, summer textile for ladies' wear, having raised stripes, or narrow line checks, intermixed with embroidery or lace like effects upon the surface.

LACE FRAME:—A machine used in the manufacture of lace, the construction of which is ingenious and rather complicated. They are also called bobbinnet machine, point net frame, warp net frame, etc.

LACE NEEDLES:—Those needles, in lace making, to which the loops of yarn or thread are transferred, to produce the pattern, so that tuck-stitch, transferred stitch or dropped-stitch can be used.

LACE THREAD:—A twisted thread, composed of two minor threads of great difference in their counts; in turn imparting a beady or lace like appearance to art needlework in which it is used. The counts of yarn used vary from 140's to 350's cotton yarn.

LACMOID:—A dark violet blue coal tar dyestuff, derived from resorcin.

LACTARENE:—A mordant, used in calico printing. A yellowish, granular, pulverulent casein, or curd of milk, produced by precipitating skimmed milk with dilute acids.

LADDER STITCH:—In embroidery or fancy work, a cross bar stitch resembling a ladder's rounds.

LADY'S CLOTH:—A term by which is distinguished a class of fine, broad, light weight woolen goods, face finished; used for making ladies' wraps and dresses.

LAG:—A wooden bar of the harness chain, used in connection with some classes of dobbies.

LAHAR CRAPE:—A soft draping silk and cotton fabric for evening wear.

LAHORE CLOTH:—A name given to cloth made in Great Britain, from Cashmere wool.

LAID WOOL:—Wool from sheep which has been smeared with tar and butter as a protection from the rigor of winter.

LAMA:—See Llama.

LAMBA:—A cloth made of wild date leaves by some tribes of native Africans.

LAMBSKIN:—The pelt of a lamb, used for ornamental purposes; also its imitation in woolen cloth, made to resemble the dressed skin of a lamb.

LAMB'S WOOL:—The fine wool of lambs, used in part in the manufacture of fine cloth; as broadcloth, beavers, kerseys, etc.

LAMB'S WOOL YARN:—An extremely soft, slightly twisted woolen yarn, used for knitting and embroidery.

LAMINA:—Scales on wool fibres.

LAMMY:—The thick, quilted, outside jumper, worn in cold weather by mariners.

LANARY:—A place for storing wool.

LANCÉ:—Showing minute dots or specks; fine, well distributed pin-point effects.

LANDING BAR:—In lace making, the shuttle bar.

LANGET:—A strong lace used in Holland, mainly for women's dresses.

LANOLIN:—An unctuous fatty mixture of the ethers of cholesterin with fatty acids, obtained from various keratin tissues, as the wool of sheep; valuable in pharmacy as a basis for ointments.

LANSDOWNE:—A fine twilled dress goods, having a silk face and worsted back. A novelty in dress goods.

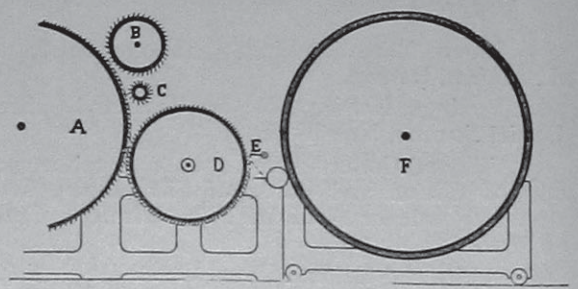
LANT:—Stale urine, used formerly extensively for scouring wool.

LANTERN:—The extension on the cylinder of Jacquard machines, which turns the same by coming in contact with the catches.

In calico printing, the steam chamber in which the colors of the printed fabrics are fixed.

LAP:—A rolled fleece of cotton, wool or their mixtures, before or during carding.

LAP FEEDING SYSTEM:—This is the oldest method of feeding in use, and refers to the feeding between first and second breaker. This system of feeding

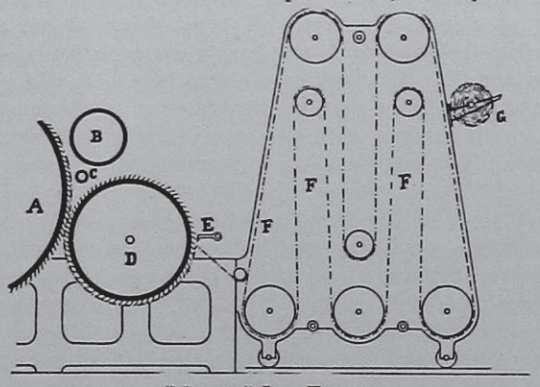


SIMPLE LAP FORMER.

A Swift, *B* Fancy, *C* Clearer, *D* Doffer, *E* Doffer Comb, *F* Drum upon which the film as coming from the doffer is wound to form a lap.

is not used in this country, but is used extensively abroad. There are two types. In one, the film as taken off by the doffer knife, in turn is automatically wound around the surface of a large drum. When the lap is of sufficient thickness, it is torn across in a direction parallel to the axis of the

drum and taken to the next card of the set, in the form of a sheet composed of about 40 films or thicknesses each 3¼ by 60 inches in length, and 60 inches wide. In connection with the other system of lap feeding, and which is of a later type, known as the *Martin Lap Former,* the lap is built



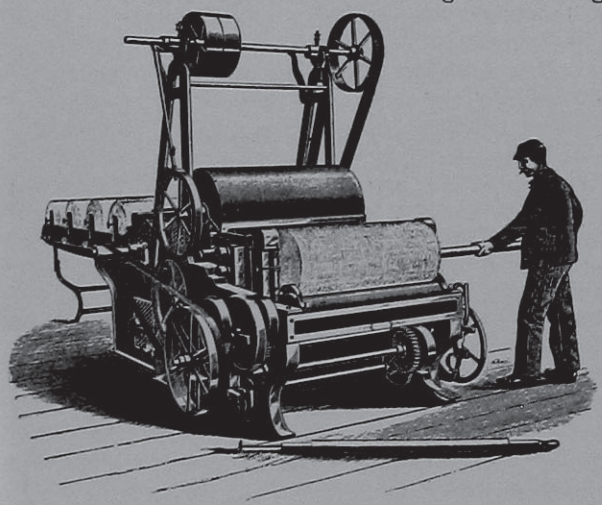
"MARTIN" LAP FORMER.

A Swift, *B* Fancy, *C* Clearer, *D* Doffer, *E* Doffer Comb, *F* Endless Apron of great length, to form the large lap desired, *G* Roller upon which the lap, when broken, is wound for convenient feeding to the next carding engine of the set.

on an endless lattice of great length, but with the exception of the latter item it does not differ from the method previously referred to.

LAPIS:—The process of calico printing with indigo, the resists acting as mordants for other dyes, as madder or quercitron; so called from the bright blue color produced.

LAPPER:—In cotton manufacturing, that portion of the Picker or Scutcher which receives the opened and cleaned cotton from the beating and blowing



INTERMEDIATE OR FINISHER LAPPER,

or Scutcher with Lap Machine; showing a steel lap rod inserted into the hollow lap roller, the latter having been withdrawn previous to the operator inserting the same again in the head end of the lapper, as is shown in illustration; after which the finished lap is bodily removed from the lapper, using the steel lap rod for this purpose.

portion of the machine, and compacts it into a lap or fleece upon the surface of a roller called a lap roller. This lap or fleece, when it acquires the proper thickness, after inserting a steel lap rod, is torn across, and the finished lap removed from the lap roller, to be in turn fed to the intermediate or finisher scutcher, or to the carding engine; into the action of either machine quoted, the lap is fed by the feed rollers.

LAPPET:—An ornamented fabric in which the figure is produced by means of extra warp threads, the ground weave being plain cloth; the extra threads form the figure on the surface, the filling on each pick interweaving with these threads and binding them to the surface of the fabric structure. In order to produce the figure, a series of needles, fixed to a movable frame, which slides through a distance equal to the breadth of the figure woven, is used. These needles are lifted into the lower shed of the warp, in front of the reed, carrying the extra figuring threads along with them. After the shuttle has passed across the shed, the needle frame is moved out of the way to allow for the beating up of the reed, and when the extra or figuring threads are then bound into the body of the fabric structure. The distance to which the needle frame can slide to the right or left, on each pick, to suit the pattern, is controlled in different ways.

LAPPET FRAME:—In a lappet loom, the sliding bar carrying the needles, each needle being supplied with a separate thread, for producing the pattern.

(*To be continued.*)

HOW TO REMEDY TROUBLE IN DYEING, BLEACHING AND FINISHING.

The imperfections in the yarn or in the finished fabric, are ofttimes a source of considerable loss to the manufacturer.

In many cases this can be attributed to the Bleaching, Dyeing or Finishing, and although the manufacturer or his overseer may feel reasonably certain that such is the case, they lack, in many instances, the necessary apparatus and analytical knowledge of chemistry to determine it.

At such a time, in order to satisfy themselves that their theory is correct, and to secure the necessary information, it is advisable to call in a recognized expert on the subject.

A number of manufacturers, when they are in doubt regarding any branch of their production, especially Bleaching, look to one of the ablest in the line, Frederick J. Maywald, F. C. S., Consulting Chemist, 91 Pine Street, New York City.

The laboratories of Mr. Maywald are complete in every detail, and his staff of able assistants are capable of reducing trouble, no matter where it is, to its origin.

Bleaching is but one of the subjects treated by Mr. Maywald, and any trouble in the textile industry, no matter what it may be, consistent with chemical research, is capable of being solved by him.

Alfred Suter, Textile Engineer, 487 Broadway, New York City, has secured the Sole Agency of the *Filature Lyonnaise de Schapps.* J. Villard's Co., Lyons, France, makers of Schappe and Spun Silk, in the gray, in skeins and on cops, current and special twists, and solicits the patronage of the trade.

Szepesi & Farr is the form of copartnership which will hereafter conduct the foreign textile machine business formerly handled by Schuchardt & Schutte, also several domestic textile machinery accounts, will be handled. The firm consists of Eugene Szepesi, formerly in charge of the textile department of Schuchardt & Schutte and Arthur V. Farr, M.E.

The Action of Alkalies on Wool.

By Joseph Schneider.

The use of caustic alkalies in dyeing wool is not a novelty. Caustic alkalies were used in dyeing indigo when this industry was introduced into Europe. Even to-day, the peasants in Hungary and Transylvania, use the same old method of centuries ago, and are producing an indigo dyed wool which has a very good quality—namely, great fastness to rubbing. That great authority, Chevreul, used milk of lime for the preparation of wool, for the making of the famed Gobelins tapestry.

With the progress in artificial dyestuffs, new simplified methods came into use, and the principles of the old dyeing methods were lost sight of and forgotten. Every dyer knows something about the deteriorating effect of caustic alkalies on woolen goods, and therefore nobody thought that some good qualities could be produced by this very powerful reagent on wool or woolen yarns and fabrics. All depends on concentration, time and temperature, and these three points can be kept under control by any intelligent dyer. That old proverbial saying, "Give it time" is of no use in this case. New methods require, sometimes, new mechanical installations, different ways of handling the goods, and always exact observations and prompt action.

Cotton and wool as textile fabrics behave differently towards the same class of dyes, and this diametrically opposite behavior leads to the application of reagents which are used in practice for one only, *i. e.*, alkalies for cotton.

In subjecting woolen yarns to the action of caustic alkalies of different concentrations, a notable difference in appearance of the woolen yarn is observed.

The stronger the lye, the greater will be the shrinkage and also the absorbing power for dyestuffs, but only up to a certain strength of the caustic lye, 32° Tw. being the limit. Above 32° Tw. the action is gradually less, and at 64° Tw., no action takes place in a limited time of, say, one hour.

The dyeing properties of these woolen yarns treated with caustic soda of different strengths, are in direct proportion to the concentration, the time of treatment, and the degree of heat. Heat quickens that action. By this regular action of caustic alkalies on the woolen fibre are given the ways and means to produce any specified effect known beforehand, that is, deterioration or disintegration of the woolen fibre or fabric is, by proper attention and care, entirely avoided.

The following conditions must be observed:

(1) To have such an installation that loss of time is excluded, and quick work is obtainable.

(2) Old dyebaths, either for loose wool or yarn, are of no use. And it should be repeated that the cardinal point in the treatment of animal textile fibres with caustic alkalies lies in its regularity, dependent upon the concentration of the liquor, the time of immersion, and the temperature.

After these observations and acquaintance with these facts a further step is taken in reducing the quantity of alkali and forcing the action with the application of heat. Good working results are obtained by using a normal standard solution (40 grms. per 1000 cc.) of caustic soda and measuring off 13 cc. for every litre of water, boiling the wool or woolen fabric for 15 minutes, running off the boiling liquor, and rinsing the wool with the equivalent quantity of sulphuric acid. Bichromates can now be added, and with the application of heat, the mordanting can be finished in less time than without the treatment with caustic alkali. The caustic alkali removes sulphur from the animal fibre as sodium sulphohydrate.

In souring the wool which had been boiled with caustic soda, sulphuretted hydrogen was evolved and sulphur precipitated, which proves the presence of sulphohydrates and polysulphides, and consequently the keratine itself will contain more oxygen. It has not been ascertained yet whether any oxidation or hydration takes place during the treatment. The new keratine compound has a strong reducing power on bichromates at the boiling point, the reduction—that is, the *complete* reduction—of the bichromates (3 to 4 per cent) takes place in a shorter time, and with the assistance of sulphuric acid, chromium sesquioxide is fixed on the fibre in a pure state.

Wool prepared and mordanted in this way does not alter or change on exposure to sunlight, which is another advantage. The yarn feels very soft when compared with yarn mordanted by the old method with sulphuric acid and bichromate. No reducing agents are required. The absorption and fixation of dyes are rapid, in neutral solutions even, and levelness of shade is the rule, compared with the same dyeings by the old methods.

Calico Printing Mechanism.

By James Robinson.

The production of printed effects upon calico and other textile goods involves the carrying out, in proper order, of a somewhat lengthy series of operations in a very much diversified plant of machinery. It requires also, at the principal stages of the process, a chemical treatment necessitating an intimate knowledge of the textile fibres, of the various coloring matters, and of the action of these coloring matters upon the fibres and upon one another. In order that a continuous interest may be maintained, it is desirable that we should first sketch in outline the routine to be followed, and state the objects of the principal processes.

Considered on their broadest lines, the successive groups of operations may be summarised under the following headings:

1. Preparation of the cloth for printing.
2. Application of the coloring matter to the cloth.
3. Fixation of the coloring matter on the fibre of the cloth.
4. Finishing.

(1). Preparation for Printing. The object of this is to remove from the cloth physical imperfections,

such as down or loose fibres, and loose ends of yarn, that would interfere with the sharpness and clear outline of the printed pattern; and more important still, to extract and remove the impurities of the cloth. These impurities consist of the bodies, other than cellulose, contained in the natural cotton fibre, and of the sizing material added to the warp to assist the weaving, and of foreign matter gathered during the operations of spinning and weaving. All these impurities, besides giving to the cloth its characteristic dull brownish color, would, if not removed, prevent the successful fixing on the fibre of the various coloring matters, and modify their shades.

The removal of the mechanical imperfections is effected by singeing the face of the cloth, by shearing, brushing and beating. The impurities are extracted by the process of bleaching, which, reduced to its elements, consists in the saponification of the fatty matters by boiling under pressure with an alkali, and the oxidation of the coloring matters, with the necessary cleansing from the dissolved impurities by means of many energetic mechanical washings.

(2). Application of the Coloring Matter. This operation is effected in a variety of ways. In its simplest form the colors are directly printed upon the cloth, and as most coloring matters have little affinity for the cotton fibre, they are combined with the necessary mordants or coagulants to effect their permanent union with the fibre in the subsequent operation of fixing. Pigment colors are mixed with such bodies as albumen, which subsequently coagulating under the influence of heat, fasten the color mechanically. The mordanted and dyed styles, such as those of the alizarin colors, are not applied directly to the cloth in the printing machine, but certain metallic oxides, as those of alumina and iron, are printed and fixed on the cloth. These metallic oxides have the property of attracting alizarin from its solution, and if cloth on which they have been printed and suitably fixed is worked for the requisite length of time in a heated dyebath of alizarin, the color is only taken up and fixed on those portions where the metallic oxides have first been deposited. In what is known as the discharge style of printing, the cloth is first impregnated throughout its whole substance—that is, padded—with some dye material such as anilin salt, then the cloth is dried, but the color is not developed on it, nor is it fixed. It is then passed through the printing machine, and chemicals having the property of preventing the development of the color, are printed upon it, either alone or in combination with other coloring matters. The ground is then developed by steaming, and the printed pattern, white or colored, is obtained upon a colored ground.

(3). Fixation of the Coloring Matter. This process usually consists in the exposure of the printed pieces, in suitable chambers, to an atmosphere of steam, which effects the combination of coloring matter and mordant on the fibre of the cloth, or coagulates the albumen which fixes a pigment color. In some cases, as in that of the mordanted and dyed style, the color is both applied and fixed in the dye bath. Following the fixation or development of the color by steam, and sometimes as a completion of that process, the goods are in many cases passed through chemical solutions and immediately thereafter are thoroughly washed, and all good work is well soaped and washed, principally to remove the starch or gum that was mixed with the printing color to give it the necessary consistency for use in the printing machine.

(4). Finishing. The process of finishing is that final treatment of the cloth which is required to give it a pleasing touch and appearance and make it ready for the market. The goods in their passage through all the foregoing operations have become pulled out of shape; the picks rest no longer at right angles to the warp, the goods have lost much in weight and have contracted greatly in width, and owing to their dull and uneven surface, the patterns and colors printed on them are not seen to the best advantage. The crooked threads must, therefore, be straightened; lost weight be restored by starching—or where weight is not required, some softening material may be added to give an agreeable touch to the cloth; lost width be restored by stretching, and finally a smooth and more or less lustrous face given to the goods by calendering, after which they are ready for folding and packing.

Having thus traced in outline the processes through which printed goods are to pass, let us proceed to the consideration of the machines in which these processes are carried out.

Singeing. The removal of the nap from the face of the cloth is effected mainly by passing the goods through Bunsen flames or over the surface of strongly heated copper plates. After leaving the flames, the cloth is usually run through water or through a box filled with steam to extinguish sparks. The air is supplied by a piston pump or by a rotary blower, and is thoroughly mixed with the gas in a suitable mixing chamber before entering the burners. These machines are usually made about 80 inches wide on the face, to take two pieces of cloth side by side. The degree of singeing is regulated by varying the speed of the cloth through the machine.

In many printworks—especially where only plain woven goods are printed—the plate type of machine is still held in favor.

It will readily be understood that the passage of the cloth at a rate of about 180 yards per minute over the surface of the plates causes some local cooling. To counteract this, the rollers or guide bars pressing the cloth upon the plates, are given a traversing motion, concentric with the plate, which ensures the utilisation of almost the whole area of the plates, and constantly brings the cloth in contact with a freshly heated portion of their surface. In this, as in the gas singeing machine, the cloth is immediately run through a water box or through steam to put out the sparks.

(To be continued.)

Natural Coloring Matters.

The main countries of its origin are the north and south of the Niger, Sierra Leone, the Indies, and Jamaica. The importance of the natural dyes has be-

come so very limited that research work is now mostly of a scientific nature and less of a practical nature. There are however still some members of the class which have not been supplanted by the aniline and other artificial colors. Of these, the most important are logwood, fustic, quercitron bark, and natural indigo. As the result of acclimatising Natal-Java varieties of the indigo plant in India, the cultivation of this product has entered upon a new lease. Higher yields are being obtained from these species of plant. The diminution of the demand for Jamaican logwood abroad has been put down to the lack of direct representation of the producers in European countries.

POINTS ON WOOLEN AND WORSTED FINISHES.

Face Finish.

Gigging is one of the most important operations in the finishing of woolen napped goods, for only a well gigged piece of cloth will do justice to the other manipulations of the finishing department, and to properly perform the operation, requires years of practical experience. The appearance, and before everything else, the *feel* of the goods, are important guides.

The nap which is required to bring about this finish cannot possibly be formed at the gigs unless there is already in the goods a good, firm basis on which to work. For this reason the stock which is put in these goods must possess plenty of the felting property, which makes the production of a good solid felt possible, and when the teasels then can work into this felt without being in danger of cutting down into the threads and consequently weakening the fabric.

A person with any expert knowledge can, of course, readily determine, in the case of a finished piece of cloth, whether it has been gigged too much or too little. This, however, is rather difficult during the actual process of wet gigging. Insufficiently gigged cloth, when dry, presents a more or less coarse and unclean appearance and invariably has a more or less raw feel when the flat hand is passed downward with the nap, caused by the unloosened felt remaining at the bottom. It is the fundamental principle of correct gigging, to loosen the felt down to the plane of the weave, and to thoroughly lay the nap thus obtained; and the more thoroughly this is done, the finer and smoother will be the surface of the cloth, in appearance as well as in feel. Again, the surface of a cloth that has been gigged too much, will look indistinct and cloudy, but of course, be very soft in feel.

No definite rules for gigging a face finished fabric can be laid down or learned by rote, still, a few material points useful for beginners may be given.

The most important considerations to be taken into account are:

(1) Quality and character of the wool,
(2) Texture and weave employed,
(3) Kind of fabric under operation and its purpose of wear,
(4) The finished effect desired, and
(5) The strength of the cloth.

The quality and character of the wool are most important factors, since it will be readily understood, that a cloth made from a fine sound wool will withstand far more gigging than one made from an inferior stock, because upon the fineness of the wool depends its felting capacity, and the finer the wool the more compact the felt, requiring in turn more forcible gigging, in order to produce a smooth and elegant face. The cloth during the gigging has a very soft and open feel, but becomes much firmer and more compact when in a dry state, so that when the piece is dried, an inexperienced person, having previously examined it in the wet state would hardly recognize it. On the other hand, there are wools met with, which increase in resistance during the gigging; they *swell*, as the practical finisher says. After the first few runs on the gig they begin to grow thicker and firmer, instead of softening, and when naturally such fabrics demand a forcible gigging. It is not a rare occurrence to find that cloth which has been gigged almost ready in the evening, and has been left lying wet over night, requires the next morning two, three, or even more runs in order to finish it. This swelling is a characteristic of the best and finest wools, and may be accepted as an infallible indication of the excellence of the wool used in the construction of the fabric.

The texture of the cloth, especially that of the warp, also demands special attention, since the higher this texture, the slighter is the effect the teasels have upon the cloth and the more it may be gigged without incurring the danger of making it tender. Again the weave, *i. e.*, the interlacing of the warp and the filling, and which certainly has some relation with its texture, must also be taken under consideration in gigging. Fabrics interlaced with short, smooth binding weaves, like the plain weave, 4-harness broken twill, 3-harness twill, etc., are not as readily attacked in gigging as pronounced twilled goods, diagonals, etc., *i. e.*, looser interlacing weaves of any of the many divisions of weaves.

Fabrics in which the filling forms the face will suffer more than fabrics in which the face is produced by the warp, and in connection with which (filling face cloth) the finisher must exercise the greatest of care, since such fabrics generally require only little gigging and this with dull teasels, whereas goods having their filling well covered by the warp, such as satins, doeskins, kerseys, beavers, etc., require a strong and forcible gigging.

Finished effect desired. In considering the desired final effect, it is apparent that a cloth which is to have a fairly long nap, need not be gigged as deeply as one which, if possible, is to be steam-lustred, and then shorn short. Melton-like goods require only little superficial gigging, while on the other hand, doeskins, kerseys, beavers and kindred cloths are to be gigged very thoroughly, in view of the subsequent operations. Fabrics destined for wear, like Uniform-cloths, and in which attention is paid more to their strength than their elegance, gigging must be restricted to its minimum.

In many classes of face finished fabrics, it is necessary to crop down the nap during the gigging process. That is, the piece is taken to the cropping shear and

the nap is partially shorn off so that when the goods are run again on the gig, the teasels can get down well into the body of the felt. This more particularly refers to heavy weights. In gigging kerseys for a water finish, it is a good plan to gig very slowly and as much as possible one way only, since these fabrics, as a rule, are of medium to low grade, and therefore the material used in their construction is usually not of the best felting quality. For this reason make what felt that is there go as far as possible towards producing a good face, a good plan being to gig them somewhat moister than would be advisable in other cases, since the less moisture the goods have, the easier fibres are pulled out and for the same reason do as little reversing as possible, in order so as not to lose any fibres on that account.

The strength of the cloth is one of the most important points to be considered at gigging, and is frequently the check that retains the finisher from giving a fabric of cloth a workmanlike elegant appearance, however much he may desire to do it, for the fact that a certain strength for it, when finished, is demanded.

It is admitted that the finisher cannot impart a good appearance to the cloth without gigging it well, and, of course, deteriorating its strength to a certain extent. To perform this operation successfully, one of two things is necessary—the cloth must either be manufactured from material which, in spite of a sufficient amount of gigging, will remain strong enough to comply with all reasonable demands, or its good appearance must be considered as secondary to its strength. A middle course might, it is true, be followed, and the cloth gigged more and correspondingly longer with dull teasels than with sharper ones. But even in this case, success in many instances is uncertain, leaving out of consideration the loss in time and consequent expense to the manufacturer.

The Velvet Finish.

This finish, as indicated by its name, shall impart to the face of the fabric a finish having the characteristics of plush or velvet appearance, *i. e.*, in that the nap is to be thick, and stand as nearly in an erect position as it can be got. It is a finish relying entirely upon the proper gigging, although a proper cloth structure and proper fulling, previous to gigging, must have been attended to. The stock used in the construction of the fabric should be of good felting capacity, and the fabric handled at the fulling, so as to produce a bottom upon which much work is required. Gig them as moist as possible, but not enough to have them drip, therefore, extract them slightly, to stop the dripping, but no more. When dealing with a double, *i. e.*, two cylinder gig, keep both cylinders going in opposite directions all through the process. After gigging is finished, extract and dry them, and give them a thorough dry beating, which will make the nap lofty. All the after processes in connection with this finish must be conducted with care, so that at no time there is a tendency to lay the nap much and also to avoid turning it over too much, which is just as bad.

(*To be continued.*)

Determination of Wool and Cotton in Mixtures.

The chemical methods for the estimation of wool in the presence of cotton are based upon the solvent action which warm caustic soda exerts upon wool. The best method is perhaps the official one in use at the Conditioning House at Aachen, Germany, according to which the material is treated with a volatile solvent to remove fatty matter and then with hydrochloric acid (2 per cent) to remove filling materials. It is then well rinsed and dried at 110° C. The wool is removed by boiling in a 2 per cent caustic soda solution and the residual cotton is rinsed, lightly soured, rinsed again until free from acid, and dried at 110° C. The proportion of wool to cotton is calculated from the dry weights, allowance being made for the facts that cotton itself loses some 3.5 per cent by boiling with caustic soda, and scoured wool rinsed thoroughly in water loses about one per cent.

The Dyeing of Woolen Piece Goods.

The first duty of the wool dyer is to regard his operations from the point of view of endeavoring to increase the spinning and the fulling properties of the fibre, as well as to improve the appearance and handle of the wool. These endeavors favor the use of the one-bath method of dyeing. Attempts were made to dye wool from one bath long before the aniline colors had made their appearance, though it is due to the newer colors that this method has become practicable. Over the two-bath method of application it offers in many instances advantages not only as regards spinning and fulling, but economy in cost of labor and cost of steam. In the treatment of piece goods certain precautions need to be observed, mainly to keep the goods continually in motion during the dyeing, and to provide that no creases occur. For blacks or piece goods logwood is still greatly in favor, since it supplies not only a fine bloomy shade, but also improves the handle of the cloth. Dyeing with logwood also appears to be the better course for securing the proper covering of the slight proportion of vegetable matters present in the fabric. Naturally, many attempts have been made to produce the like effects by the use of the artificial coloring matters, but so far without success, but partially, in combining the two, the natural and the artificial.

HOSIERY AND KNIT GOODS.

National Association of Hosiery and Underwear Manufacturers.

The Annual Convention of this association will be held at Hotel Walton and the Exhibition at the Horticultural Hall, Philadelphia, on May 23 to 27th, inclusive.

The exhibition will be bigger and better than ever and of interest to anyone connected with knitting and the allied industries.

The Journal will be a contributor to the advancement of this movement by taking space in the exhibition hall, on the second floor, and cordially invites its readers and advertisers to avail themselves of the accommodations provided at the booth. The interest of the readers and advertisers will be looked after by either Mr. E. A. Posselt, the Editor and Publisher. Chas. F. Posselt, H. Nelson Craig, or B. Geisinger, who will be in attendance.

When you come to the exhibition, make our space your headquarters.

A Review of the Hosiery and Underwear Trade.

The past month has witnessed little or no change with regard to the hosiery trade. Buyers have been inclined to purchase for immediate needs only and bulk trade with a majority is out of question.

One thing is apparent, and that is that buyers are realizing that the mills are selling at as low a margin as is possible if they are to keep their mills running, and it is hoped that this may be the means of stimulating business in the near future.

The best made goods are most in demand and buyers are unusually critical of qualities, and seem to be, in many cases, purchasing stocks of solid colors, for special sales.

The underwear trade has shown a very conservative attitude. Mills in many cases are working to supply immediate demand, accumulating little or no stock for future delivery. This is especially true of mills producing low priced ladies' vests and light summer underwear. Buyers are seeking this class of goods, but do not feel inclined to meet the price asked by the mills. Some buyers claim that the price asked will have to drop in order to meet competition of the piece goods trade. The mill takes the stand that prices will remain so, and possibly higher prices than those which prevailed last fall, when the spring season opened, will have to be paid, or the mills will be obliged to suspend operation.

There is one thing that will tend to correct this situation, and that is a break in the cotton market. Although the cotton yarn is selling below the cost of production, in many instances the mills cannot meet the price of the market. The basis of the situation may be readily seen, when it is observed that the fall and spring lines of knit goods are relatively cheaper than any lines of cotton goods. The reason for this is laid at the feet of the selling agents, who fear the result of disorganizing jobbers and retail prices. To do this, the mills were obliged to lower the quality of production in order to meet the prices forced upon the trade, and it is said that a number of them favor an advance in prices which would enable them to put out the staple line and do away with the inferior class of merchandise which they are now forced to put on the market.

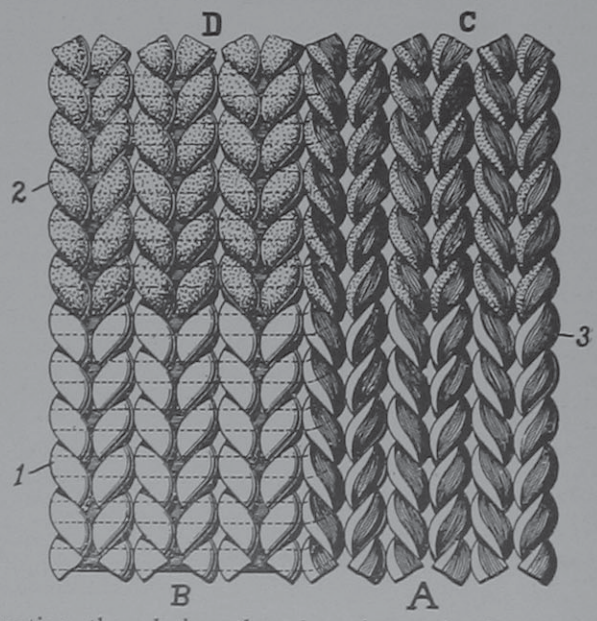
The demand for union suits continues strong, and manufacturers look forward to a heavy trade in this line the coming season.

The progress of the fall lines of underwear is very encouraging, the sales to date being far in advance of the usual amount, mills producing this line being of a very optimistic mood, and it is hoped that the duplicating will prove very much better than the spring business has proved to date.

PRODUCING CHECKERED PLATED KNIT FABRICS.

The method generally used in making such a fabric consists primarily in the use of a body yarn and two different colored plating yarns, the latter being fed simultaneously to the needles, the fabric presenting the plating yarn on the face at all times.

The effect is produced by plating for a few courses intermittently to produce horizontal stripes, and by



floating the plating thread at intervals the vertical stripes are formed, the general design being produced by the courses of plain knitting in combination with the floated plating yarn and when a three colored fabric is the result. This is one method.

A new idea, for a four colored fabric without increasing the number of yarns used or in any way complicating the construction of the machine, is the object of a new fabric structure, thus explained:

In this instance, two differently colored body threads are used in connection with one plating thread, the fabric being horizontally striped, the reverse of before by the body thread, the plated threads producing the vertical stripes by being floated at intervals of a few wales. During the courses in which the plating yarn is idle, horizontal plain colored stripes are knit, varying, as the body yarn is changed.

In order to more clearly explain the idea, reference is made to the accompanying illustration, considering (for example) the fabric to be knit with black, red and white yarns.

In the construction, as shown in the illustration, the unshaded portions (1) represent the white, body yarn; the mottled portions (2) the red, body yarn; and the shaded portions (3) the black, plating yarn.

The regular method of knitting is that as is used in producing any knitted fabric. In this case, the black yarn (3) is plated on the white yarn (1) producing a black and white effect as shown at *A;* if the black yarn (3) is floated at intervals of a few wales, the effect will be a pure white ground, as shown at *B*. Repeating this procedure for a few courses, will produce white vertical stripes or checks, the size being determined by the number of courses repeated.

Again, by plating the black yarn (3) on the red yarn (2), a black on a red ground is the resulting effect, as shown at *C;* again if the black thread be floated at intervals of several wales, a pure red effect is the result, as shown at *D*, the repetition for a few courses producing red stripes or checks, as the case may be, in the fabric.

From explanation given it will be seen that in connection with the new process explained, a greater number of patterns or color combinations can be used than was possible heretofore.

News of the Hosiery and Knit Goods Trade.

Philadelphia. John Blood & Bro., manufacturers of women's underwear, Allegheny avenue and Witte street, are building a 70 by 40 feet, two-story addition, costing $6,000, to their present factory. This new addition will give the concern increased facilities for their bleaching and winding departments, providing also additional room for storing manufactured goods.

Philadelphia. The Weierman Hosiery Co., Second and Norris streets, are installing additional machines, which will bring the total up to 83.

Philadelphia. The Colonial Hosiery Co., are pushing a new sort of a guarantee proposition which is causing quite a stir among the trade. They offer to send on consignment, to any reputable retailer in any town where they are not now represented, a case of their Colonial half hose in assorted sizes and colors, and if after sixty days the retailer does not find that their goods are selling, he is at liberty to return the unsold goods at the manufacturers' expense both ways, and retain the profit on the goods sold, for his trouble.

Philadelphia. The Universal Hosiery Co., F. L. Strass, superintendent, are installing seven imported full fashion women's hosiery machines, twenty-four children's ribbed hosiery machines, five loopers and five seamers in their new factory, Second and Norris streets.

Philadelphia. The Pilling Manufacturing Co., Allegheny Ave. and *A* street, manufacturers of underwear, sustained a loss of $800 on their stock, by fire.

Philadelphia. David Frankil, David Wasserman, Max Hertzberg, Nathan Binder and Solomon Adelson have incorporated as the Union Knitting Mill Co., with a capital of $10,000.

Philadelphia. Coates Bros., manufacturers of cotton and lisle hose for men and women, Orchard and Tacony streets, will add eighteen more machines to their plant. They also make men's silk half hose to retail at 50 cents.

Allentown, Pa. The Novelty Hosiery Co., 727 Meadow street, expect to have all of their machinery changed to finer gauge by June 1, when they will be able to make 900 dozen pairs daily; they expect to more than double this within a year.

Bangor, Pa. The U. S. A. Silk Co. has started its silk glove and hosiery factory; they employ fifty hands.

Easton, Pa. A. J. Bowers and others have incorporated the Easton Knitting Mills Co., with a capital of $10,000. They are erecting a building on Packer street, South Side, for the manufacture of hose for women and children, and half hose for men.

Lehighton, Pa. The erection of the Clark Knitting Mill, by Walter Clark, of Bethlehem, on Hutchinson Heights, Martins Creek, has been commenced. The building is to be 30 by 70 feet, two stories high, and the plant is expected to be in operation in April, giving employment to about fifty operatives.

New Berlin, Pa. The Town Council has entered into an agreement with Lewis Lesher, of Lansdale, by which the latter is to establish a knitting factory in this place within five months, the Council to pay him $70 yearly for five years and to exempt him from taxation for said number of years.

Reading, Pa. The Crescent Hosiery Mills have been incorporated with a capital of $50,000, and leased the plant of the Pennsylvania Knitting Mills Co., where it will continue the manufacture of men's and women's seamless silk thread hosiery. Thomas F. Young, superintendent of the Pennsylvania plant, will fill the same position with the Crescent Mills.

Waynesboro, Pa. J. C. Roulette & Sons, of Hagerstown, Md., manufacturers of women's fine ribbed underwear, it is reported, will build an addition to their plant at this place.

Albany, N. Y. Simeon Holroyd, 50 Grand street, who has been manufacturing knit underwear for a great many years, is now making a line of pure silk fashioned neckwear.

Albany, N. Y. The annual meeting of the New York State Knit Goods Association will be held here on May 10.

Amsterdam, N. Y. A. V. Morris & Sons, manufacturers of men's flat and ribbed underwear, have completed the erection of their new No. 6 mill, to be used for spinning and combing cotton yarns for their own use. New machinery will be installed and in operation by the middle of the summer.

Athens, N. Y. The Athens Knitting Co. has increased its capital from $45,000 to $115,000, to provide for improvements.

Catskill, N. Y. It is rumored that the Union Knitting Mills of Hudson, which has bought the plant of the Wiley Manufacturing Co., of this place, will soon have it in operation, making balbriggan underwear. It is expected that General Wiley will continue as superintendent. The mill will be controlled by the Knit Goods Co. Joseph H. Reaney who started in as bookkeeper for the Marks Manufacturing Co. at Herkimer, is the directing head of the new combination. His home is at St. Johnsville where he operates two knitting mills.

Catskill, N. Y. Operations have been started in the Wiley Mill, which was recently bought by the Union Mills of Hudson, N. Y. The product has been changed to sweaters.

Falconer, N. Y. The Chautauqua Guarantee Hosiery Co., a new concern for the manufacture of hosiery, bandages and bands for canvas gloves, has been formed here. For the present the concern has leased the old Murray Davis building on Davis street and has several machines in operation. This building however, is to be used only temporarily, until a larger factory can be built.

Greenwich, N. Y. The J. V. Palmer Co., manufacturers of ladies' knit underwear, contemplate removing their establishment to Savannah, Ga.

Hornell, N. Y. The Merrill Hosiery Co. will erect an addition, 135 by 85 feet, to its plant.

Oswego, N. Y. The Lastlong Underwear Co. will operate its new mill by electricity, the equipment costing about $3,000.

St. Johnsville, N. Y. The Union Knitting Company has bought the movable property of the Wellington Knitting Mills, Mellenville. It has been transferred to here, where the larger part will be added to the present equipment of the company's mill and utilized for making boys' union suits, a new line recently put on the market.

Utica, N. Y. The Walworth Knitting Co. has been incorporated with a capital of $20,000 by John J. Sennot, Michael Wald and John E. Crolly.

Utica, N. Y. John E. Crotty is the general manager of the new Walnott Knitting Co., just incorporated with a capital of $30,000. They will make men's, women's and children's underwear, in the Williams building, Blandina street.

Walden, N. Y. The Hygenia Knitting Mills have been incorporated with a capital of $25,000. by J. C. Vofrel and Alfred Ryder, of Brooklyn, and F. E. Loughran, of New York.

Florence, Mass. The erection of the new McCallum Silk Hosiery Mill, which will be 165 by 80 feet, two stories, and of brick, has been started. It is expected that the mill will begin operations by August 1, and eventually give employment to about 200 operatives.

Lowell, Mass. It is reported that the T. Martin & Bro. Manufacturing Company will erect a new mill in this city. They are manufacturers of elastic webbing, and employ 250 hands, which number will be about doubled when the new mill is completed. Their main office is at Chelsea, Mass.

Methuen, Mass. The Lawrence Knitting Co. is manufacturing a new line of hosiery, which is known as the gauze *silkertine* hose. It is a light seamless hose, with high spliced heel, double sole and heavy ribbed top. It is made of Sea Island mercerized cotton, in black and tan shades.

Northampton, Mass. It is reported that capital is being raised for a new hosiery mill in Northampton. D. D. Evans of Springfield has been promoting the scheme. This concern will be independent of the McCallums, but will manufacture a similar line of goods.

Brunswick, Me. The Brunswick Knitting Mills, which were recently incorporated with a capital of $20,000, will enlarge their plant.

Norfolk, Va. Mr. Simpson, the proprietor of the Berkley Knitting Mills, of this city, will form a company to build a knitting mill at Elizabeth City, N. C.

Suffolk, Va. The Bell Hosiery Mill is now in full operation. This company has 20 ribbers, 20 footers, 5 loopers, and one drying machine. James L. Bell is its manager.

Cameron, N. C. The Regal Hosiery Mills Co., will install additional machinery.

Elizabeth City, N. C. The Elizabeth City Hosiery Co., and regarding which we reported in the February issue, will erect a brick addition, two stories high, 60 by 98 feet, and will install additional machinery.

Liberty, N. C. W. M. Hanner and others have incorporated the Lee Hosiery Manufacturing Co., with a capital of $50,000.

North Cooleemee, N. C. J. M. Greenfield, together with Charlotte capitalists, have subscribed $50,000 for the erection of a hosiery mill here.

Marshville, N. C. The outlook for the establishment of a hosiery mill here is promising.

Sanford, N. C. W. A. Ellington, of Chapel Hill, will establish a knitting mill here, and will install 60 machines. He will start operations under the name of the Effie Hosiery Mills, with a daily output of about 200 dozen pairs of half-hose.

Chester, S. C. F. M. Boyd is interested in the formation of a $25,000 company to build a hosiery mill here. They intend to install 100 knitting machines, also a dyeing and finishing department.

Greenville, S. C. An underwear plant will be started here at an early date. J. D. Gilreath is interested in the proposition.

Jonesville, S. C. J. J. Littlejohn and others have chartered the Palmetto Hosiery Company with a capital stock of $75,000. This company will install 100 knitters, 20 loopers and 20 ribbers for the production of fine half-hose. The daily capacity will be 750 dozen pairs, and about 200 operatives will be employed.

Landrum, S. C. The Blue Ridge Hosiery Mill will build an addition to double capacity. They now operate 97 knitting machines and 2 sewing machines. They do their own dyeing and finishing.

Cleveland, Tenn. The new mill of the Weiss Hosiery Co., recently organized, is nearing completion. It will comprise a 50 by 160 foot main building, for manufacturing seamless hosiery.

Knoxville, Tenn. The Appalachian Knitting Mills, paid up capital $50,000, have secured the Standard Clothing Company's factory and will begin operations about June 1. The line will be men's cotton ribs. Mr. Matt Thomas will be general manager, Mr. Lotspeich secretary-treasurer and Mr. E. J. Tator manager of manufacturing. About 150 dozen will be the daily output at the beginning. Messrs. Lotspeich and Thomas will visit Philadelphia to place orders for the machinery.

Knoxville, Tenn. The Knoxville Knitting Mills have increased their capital from $50,000 to $100,000.

Lenoir City, Tenn. The Holston Manufacturing Co. will increase its capital stock to $350,000 and will erect an additional building in order to install new hosiery machinery to their 500 machines now in operation.

Ooltewah, Tenn. The Ooltewah Hosiery Mills, incorporated with a capital of $20,000, will erect an $8,000 mill building and expend about $7,000 in knitting machinery, planning later on to spin their own yarns.

Frederick, Okla. J. W. Blackwelder, of Hickory, N. C., is interested in the Frederick Knitting Mill, which it is rumored, will establish a $100,000 hosiery plant here.

Appleton, Wis. The Fox River Valley Knitting Co. has doubled its capital because of the demand for its output, the increased capital permitting the purchase of a number of automatic hosiery machines.

Appleton, Wis. It is rumored that Herman Bach will open a knitting factory here.

Green Bay, Wis. The Oneida Knitting Co. has started on the erection of a two-story addition to be 45 by 55 feet. The structure adjoins the present plant and will be completed by May 1.

Manitowoc, Wis. H. Zonnacher will open a new knitting plant at Washington and Fourteenth streets.

Chicago, Ill. The U. S. Braiding and Embroidery Co. has been incorporated with a capital of $2,500 by David Schwartz and others.

Thomas H. Hannon, formerly superintendent of John K. Stewart & Sons' yarn mill at Amsterdam, has been appointed superintendent of the Troy Knitting Co.'s yarn mill.

ABOUT MEN YOU KNOW

Kurt H. Theyson succeeds Thomas H. Macklin, of New York, and who is probably the oldest man in the knit goods business, having for a number of years been the representative in this country of M. S. Esche, Chemnitz, Germany; on account of his advanced age, Mr. Macklin is retiring from business.

Robert Lincoln, for the past eleven years an overseer at the Pearl Knitting Co., Cohoes, N. Y., has resigned, to accept a position with the Standard Knitting Mills Co., Brooklyn, N. Y.

Louis Schlenvogt has been appointed general agent of the World's Star Knitting Co., Bay City, Mich.

E. M. Stout has been appointed selling agent for the Coronet and Allenton mills; *Arthur M. Cox* has been appointed selling agent for the Plainfield Woolen Company; Mills owned by Col. Joseph E. Fletcher.

Thomas Leonard is the new boss spinner at the Samoset mill, Valley Falls, R. I.; before this, he was with the Luther Mfg. Co., Fall River, Mass.

David C. Patchell, formerly boss weaver at the Cleveland Worsted Mills, Cleveland, O., is now general superintendent of the Uxbridge Worsted Co., Uxbridge, Mass.

Arthur A. Dickinson, formerly overseer of carding at the Merchants' Manufacturing Co., Fall River, will be superintendent of the new mill of the Nonquit Spinning Co., New Bedford, Mass.

John Lyons, boss finisher at the Weybosset Mills, Providence, R. I., has resigned to accept a similar position at Pittsfield, Mass.

Gary M. Lamar has been promoted from boss weaver to superintendent at the Nantucket Mills, Spray, N. C., succeeding W. E. Sykes, who died recently.

Hiram Fisher, formerly of Dover, Me., has accepted the position of boss carder and spinner at the Houlton (Me.) Woolen Mill.

A. Tenny White, who resigned as superintendent of the Manville Co.'s mill at Manville, R. I., was presented with a magnificent silver loving cup by the office employees, overseers and their assistants.

Alfred Bressette is the new boss weaver for the Paragon Worsted Co., of Woonsocket, R. I. Before this, he was loom fixer for the U. S. Worsted Co. at Harrisville, R. I.

William H. Merriam, superintendent of the Standard Spinning Co., Oswego, N. Y. will have charge of the yarn mill projected by the Frisbie-Stansfield mills, Utica, N. Y.

John Hardacre, of Winooski, Vt., has become boss weaver for the Knoxville Woolen Mills, Knoxville, Tenn.

E. P. Hollis is the new boss weaver at the Home Cotton Mills, Elberton, Ga.

Everett M. Cushman has been appointed superintendent of the new Holmes Mill, New Bedford, Mass., his former position as superintendent of Manomet Mill No. 1 being filled by *B. J. McCarthy.*

M. G. Einstein has accepted the position as designer with the Peace Dale Mfg. Co., Peace Dale, R. I.

Two hundred strong, the members of the Silk Bowling League of New York, and their friends gathered April 2d, at Reisenwebers, Columbus Circle, and held their annual banquet and distribution of prizes. *Charles C. Hoffman,* of Boessneck, Broesel & Co., president of the league, was the chief spokesmith of the evening. The championship of the organization was won by the L. F. Dommerich & Co.'s team. The Fleitmann & Co. and the Suskana teams had been tied for second honors, but during the roll-off, the latter team took two games straight from Fleitmann, which gave them the place. Boessneck, Broesel & Co. received fourth prize; Vietor & Achelis, fifth; Passavant & Co., sixth; Tefft, Weller Co., seventh; Schefer, Schramm & Vogel, eighth; C. A. Auffmordt & Co., ninth, and Remy, Schmidt & Pleissner, last. High team score and high team average was carried off by the Suskana Silks. High individual score went to *Stewart Jamison,* of H. A. Caesar & Co. Clean frame prize was won by *C. E. Bielitz,* captain of the Auffmordt team, and *Lester H. Prentice,* of the Fleitmann team, was presented with a prize of the same value for averaging the greatest number of spares each game throughout the season. Among the special prizes *Thomas Walker,* captain of L. F. Dommerich & Co., was presented with the prize offered by A. W. Cordua, of Vietor & Achelis, for the second highest individual tally. *Henry von Dohln,* captain of Boessneck, Broesel & Co., received the prize of *Frederick W. Steinmayer,* of Remy, Schmidt & Pleissner, for the third high individual score, and *Lester M. Prentice,* of Fleitmann & Co., was awarded the spare prize offered by *Charles E. Lotte,* of the National Silk Dyeing Co. The gold medal presented by C. S. Hasbrouck, of Fleitmann, for the greatest number of clean frames was won by *A. D. Brown,* rolling under the colors of the Suskana Silks. *Charles Steinbrucker,* of Boessneck, Broesel & Co., offered a prize for the bowler making the lowest average during the season, but his name is withheld under threat of bodily harm. *Emile J. Poletti,* captain of the Speilmann team, won the prize offer donated by *William Johnson,* of that firm, to the highest average bowler of the four lowest teams. *S. Steiner,* of J. R. Simon & Co., captured John J. Clingen's prize donated for the greatest improvement in average over last year. *Thomas Walker,* who had the highest individual average of the league last year repeated his performance this season. *C. W. Steinbrucker,* of Boessneck, Broesel & Co., was a close second.

Charles P. Newton has resigned his position with the Warren Woolen Co., Stafford Springs, Conn., to become associated with Deering, Milliken & Co., the prominent commission house of New York, as their Styler.

Daniel Meyers, Jr., has severed his connections with the Meyersdale Woolen Co., Philadelphia, and transferred his interest in the business to his son, Samuel Meyers.

Wm. Sanderson is the new Overseer of the slasher room of the Rochdale Mill, Northbridge, Mass.

Michael Sheehan is the new superintendent of the Sherman Mill, Danielson, Conn. He comes from the Samoset Co., Valley Falls, R. I.

The Textile Department of the *Lawrence Industrial School,* Lawrence, Massachusetts, has again turned out its annual graduating class.

The following graduated in the Textile Designing and Cloth Calculation Course: Harry Avery, William A. Hoffman, Duncan McKimmon, Arthur E. Offer, William Royds, and Albert Rothera.

The course in Elementary Cotton Spinning, Cotton Picking, Carding and Drawing, was completed by: Harold S. Buckley, John Dolan, Ernest Helliwell, William R. Johnson, Jr., Charles J. Keoh, Herbert Keoh, John W. Lane, Karl W. Stocks, Robert Turner and Edward Wiseman.

The One Year Course in Cotton Loom Fixing and Calculations was completed by: William Depledge, Clarence Leach and John Sifferlin; the Two Year Course in the same subject by: Christian Burger, David Crockett, John D. McRobbie, Henry Schriender and Bertram Wrigley.

The Worsted Spinning Course includes: Ernest Appleyard, Ernest Birdsall, Harry Dearth, Charles Garnett, Michael Hannigan, Gustavus Leshner, and David Roberts.

The following completed the first year in Dyeing: Alfred Thomas, A. Wagner and Ernest H. Winters, and Christopher Wilson the second year in Dyeing.

The course in Chemistry was completed by: Alfred Thomas and Christopher Wilson.

We herewith show a photograph of the Graduates in Textile Designing and Cloth Calculations. Reading from left to right, they are as follows:

Top Row.

Arthur E. Offer, employed in the pattern room of Geo. E. Kunhardt's mill.

Duncan McKimmon, employed at the Wood Worsted Mills as Harness Looker.

William A. Hoffman, employed as Clerk at the Washington Mills.

Albert Rothera, until recently employed as Card Cutter and Chain Builder in the Pacific Mills, is now Chain Builder in the Wood Mills.

William Royds, employed in the spinning department of the Stevens Mills, North Andover, Mass.

Bottom Row.

Harry Avery, Loom Fixer at the Pacific Mills.

Harry Mitchellmore, Ass't Supt. and Ass't Designer of the Brightwood Mfg. Co., of North Andover, and Instructor at the school.

John Brudder, Designer at the Ayer Mill; up until his appointment he was Instructor at the school, day and evening classes, previous to which he was Ass't Designer at the Wood Mill.

Charles Rondeau, Overseer of conditioning department in the Pacific Mill.

Walter Gledhill, recently with the Pawcatuck Co., of Potter Hill, R. I., has been made overseer of finishing at the Weybosset Mills, Providence, R. I.

H. William Nelson, formerly superintendent of the Neuse River Mill, Neuse, N. C., has been placed in charge of weaving at the plant of the Edwards Mfg. Co., Augusta, Me.

Peter Bauer has accepted a position as asst. supt. with John N. Stearns & Co., Williamsport, Pa.

Charles Wainright has resigned his position as second hand of mending and burling at the Washington Mill, Lawrence, Mass., to accept a similar position at the Ayer mill of that place.

V. M. Johnson has resigned the superintendency of the Aragon Mills, Aragon, Ga., to become assistant superintendent for the Merrimack Mfg. Co., Huntsville, Ala.

John E. Hall, dry finisher for the Brightwood Mills, N. Andover, Mass., has become wet and dry finisher of the Salt's Mfg. Co., Norwalk, Conn.

Thomas Williams, manager of the Bradford Worsted Spinning Co., Louisville, Ky., has been elected to also serve as president of that company.

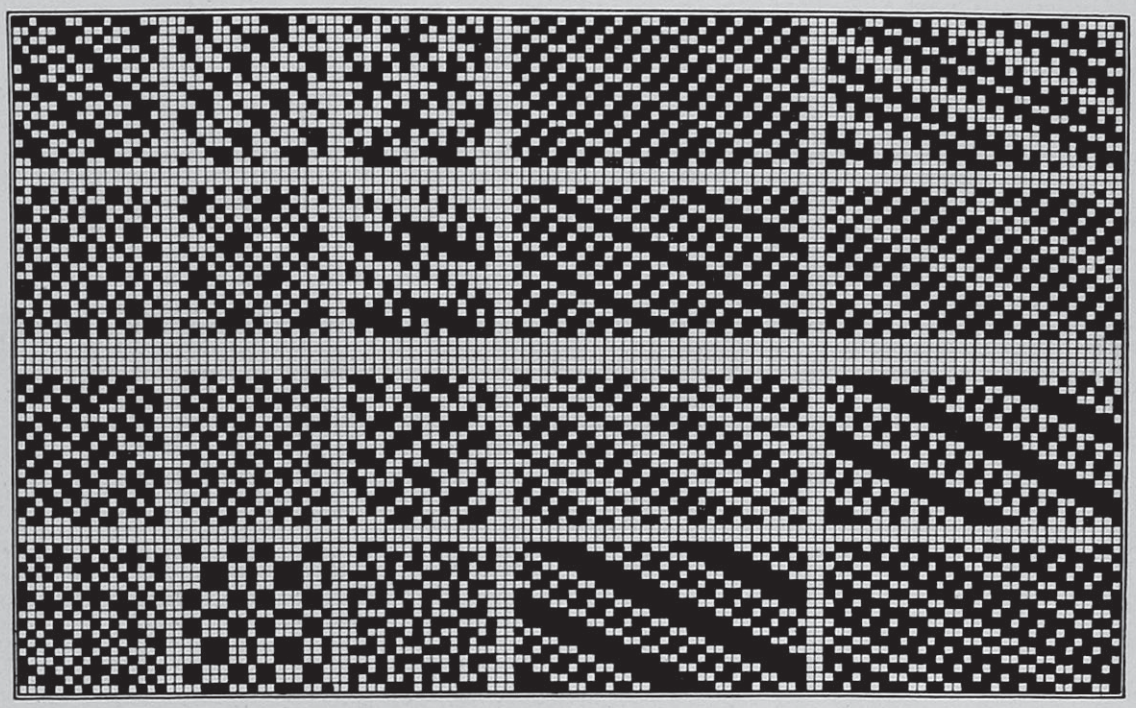
Fred Newcomb, is now boss weaver for the Strathmore Worsted Mills, Concord Junction, Mass.

(*Continued on page xvi*)

DICTIONARY OF WEAVES

(The most important addition to Textile Literature ever published.)

EIGHT HARNESS



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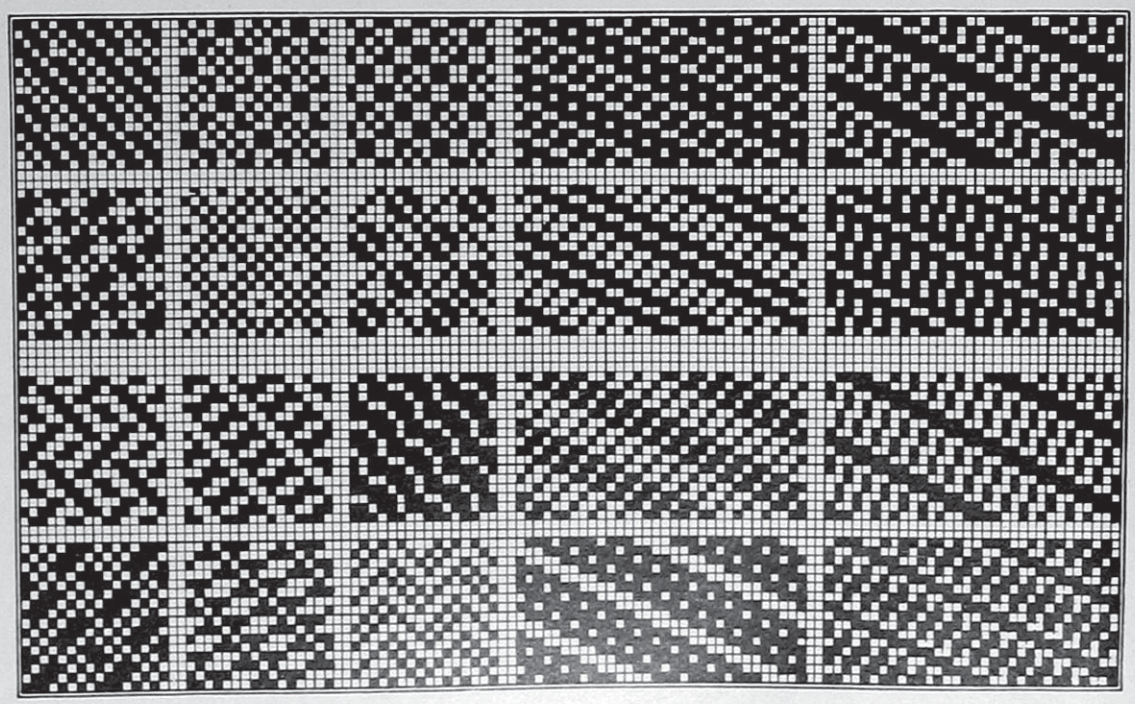
EIGHT HARNESS



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Complete, this Dictionary will contain over TWENTY THOUSAND PRACTICAL WEAVES.

About three thousand of them, every one a different weave, taken from fabrics met with in the market, have thus far appeared, and can only be obtained by new subscribers, by ordering back numbers of the Journal.

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