

95° F., being made slightly milky with carbonate of soda, previously to entering the silk. Many silk dyers consider it a good plan to add to the bath a little ether, say about $\frac{1}{10}$ %. The silk is then rinsed and dried. The addition of some tartaric acid to the bath, previously to adding the soda, has a very good effect on the lustre and handle of the silk, the solution not then turning milky. One kilogramme of tartaric acid and 5 kilos. of soda is added for every 10 kilos. of sulphate of alumina. It is easy to see that the process consists in fixing a compound of alumina with fatty acid on the fabric, and everything depends on this being done by means of bast-soap and alumina. The alumina salt is however inadmissible, provided the silk is to be dyed black, the process employed being then quite dif-

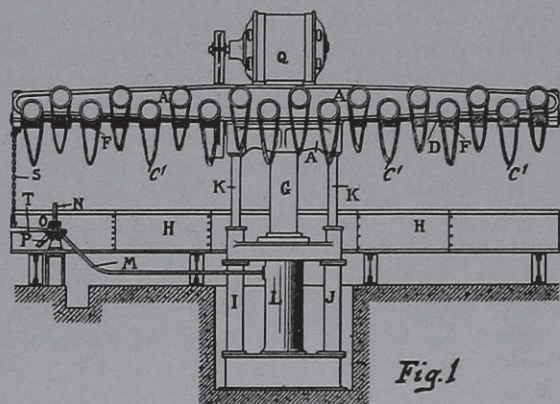


Fig. 1

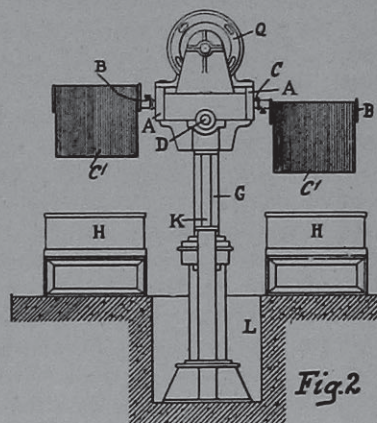


Fig. 2

ferent, logwood being then used in a bath containing about 35% of the soap, so that the fatty acid combines with the oxide of iron from the mordant. The lustring is then done with olive oil and acetic acid.

Often, however, the lustring after black dyeing consists simply in treating the silk in a bath of 10% (of the weight of the silk) of soap, immediately followed by drying.

A very good process is to pass the silk direct from the soap bath into one of phosphoric acid, the latter being preferred to acetic acid. This renders any treatment with alumina unnecessary, imparting to the silk under treatment a soft, yet rustling handle, making at the same time the silk cut well in connection with velvet and plush. It does not act on logwood black.

Wild, *i. e.*, Tussah silk, which takes a higher and more glossy lustre than ordinary silk, is dyed with gelatine and Turkey-red oil in an acid bath, the proper proportions being $\frac{3}{10}$ % gelatine and 3 to 5% Turkey-red oil. Sulphuric acid, as a rule is used, it being necessary that the bath be distinctly acid. The lustring with wild silk is done the same as with true silk. Specially translated for Posselt's Textile Journal from *Färber Zeitung*.

A FRENCH YARN DYEING MACHINE.

Of the accompanying illustrations Fig. 1 shows the machine in its front elevation, Fig. 2 being an end elevation of it. In this machine the skeins can be treated in the different boiling, washing, fixing, dyeing, loading, clearing, etc., baths without removing them from their carriers.

The machine, in its construction, comprises a horizontal frame *A* carrying a series of parallel shafts *C* (only one of each series being shown, the number used in each series depending on the length, *i. e.*, size of the machine) on which are mounted the reels *B*, from which the skeins *C* are suspended, the frame also carrying a driving shaft *D*, arranged transversely and centrally to the reel shaft *C*. Each of said reel shafts is provided at its centre with a worm wheel (not shown) which gear with worms mounted on the driving shaft *D*. The said worms and worm wheels are alternately of right and left hand pitch, so that the threads of the skeins, placed side by side, are moved in different directions, preventing entanglement of the skeins.

The movement of the reels is produced by means of an electric motor *Q*.

For obtaining a more uniform action of the baths on the skeins, the reels are given unequal alternate movements of rotation, obtained by reversal of the direction of rotation of the electric motor at unequal periods.

The frame *A* of the machine is supported by the piston *G*, working in the cylinder *L* of a hydraulic press, for the purpose of raising the frame *A*, and parts carried thereby, to remove the skeins from the baths contained in vats *H* as are located below the reels, the full length, on each side of the apparatus.

The cylinder *L* of the press is fed by a pipe *M*, into which water under pressure is introduced from a main pipe *N*. A three-way cock *O* is arranged at the junction of these pipes, by means of which the water can be admitted to the cylinder for raising the frame, or be discharged from said cylinder through an exhaust pipe *P*, to lower said frame.

During the raising or lowering of the frame, the stoppage of the movement is progressively and automatically effected by the closure of the three-way cock *O*, which is operated by the frame *A* at the end of its course, by means of a lever *T* and chain *S*.

"WHAT'S your time?" asked the old farmer of the brisk salesman.

"Twenty minutes after five. What can I do for you?"

"I want them pants," said the old farmer, leading the way to the window and pointing to a ticket marked, "Given away at 5.20."—*Clothesology*.

HOW TO DETECT THE PRESENCE OF MERCERISED COTTON FIBRE IN A FABRIC.

By W. Massot.

The first researches of consequence of the outer structure of mercerised cotton were made in 1898 by *Lange*, showing us that two typical classes of mercerised cotton must be considered, viz: such as mercerised without and with tension. The silky lustre in mercerised cotton depends on the stretching, mercerisation without tension producing shrinkage and no lustre to the cotton thus treated.

If comparing cotton fibres not mercerised with cotton fibres mercerised but without tension, the latter, if viewed under the microscope, in their outer appearance somewhat resemble silk. The fibres look smoother and more uniform, and the lumen is contracted either entirely or in places.

TO DISTINGUISH MERCERISED COTTON FROM SILK.

If we examine under the microscope cotton fibres which have been mercerised under tension, we find that such fibres resemble silk more closely than such cotton as has been mercerised without tension. The lumen often becomes obliterated altogether, the spirals, *i. e.*, the characteristic twist of the raw cotton fibre disappear, showing us smooth, uniform, silk like, straight rods. Treating the fibre with cuprate of ammonia, the lumen reappears if dealing with mercerised cotton, but not if dealing with silk.

Another difference between mercerised cotton and silk is that when treated with a solution of iodine in zinc chloride, mercerised cotton takes a blue tint, which changes to a blacker tint, according to the degree of mercerisation, while under the same conditions, silk is dyed a yellow or yellowish brown.

THE CAUSE OF THE SILKY LUSTRE.

According to *Hubner* and *Pope*, the uncurling of the natural twist in a cotton fibre is essential for the production of its silky lustre, claiming that when cotton is mercerised under tension and thus cannot shrink, the first effect of the lye is to straighten the fibre, and after that to re-curl it the other way. By this time the fibres have swollen, so that when they curl up again (this time in the reverse direction) they then present a rounded and not a flattened section. This second twist causes the surface of the fibre, smoothed by the swelling it has undergone, to catch the light at different angles, and thus to produce the lustre. When examined by the microscope, the use of elliptically polarised light is necessary to bring out the new twistings. There is, however, a possibility that the lustre is due to the joint action of chemical and physical agencies.

Matos, states that the mercerising lye acts on one or more of the inner layers of the fibre, causing them on rinsing to exert a stretching effect on the outer cuticle of the fibre, with the result of smoothing it, and making it lustrous by increasing light reflection.

TO DISTINGUISH MERCERISED FROM UNMERCERISED COTTON.

This is readily done by chemical tests, without the aid of the microscope. According to *Lange*, prepare a reagent by dissolving one part by weight of iodine in a solution of 30 parts of pure zinc chloride and 5 of

pure potassium iodide in 14 of water. Pour off, for use, the clear brown liquid which collects above a sediment of undissolved iodine, and which will turn blue both the mercerised and the unmercerised cotton, however, with the difference that with mercerised cotton, such color is fast to water, but which is not the case with unmercerised cotton.

According to *Hubner*, steep the cotton for a few seconds in a solution of 20 grammes of iodine in 100 *c.c.* of a saturated solution of potassium iodide, and then to wash it with the water, when unmercerised cotton becomes nearly white again, whereas mercerised cotton retains the blue black color.

Another test is to dye the cotton with 100 *c.c.* of a solution of 280 grammes of zinc chloride in 300 *c.c.* of water, adding to it just before use 10 *c.c.* of a solution of one gramme of iodine and 20 of potassium iodide in 100 *c.c.* of water. The cotton to be tested is wetted out, pressed between two filter papers and then dyed; with the result that mercerised cotton will take a dark blue color, unmercerised cotton remaining white.

Knecht, advocates the use of Benzopurpurine, and when in the presence of a little hydrochloric acid, the dye rapidly gives a blue tint to unmercerised and a reddish violet shade to mercerised cotton. On heating and carefully adding titanium chloride, both cottons change color, ordinary cotton becomes an indigo blue, and mercerised cotton red, but the difference is not clear unless the mercerisation has been done with a lye of more than 19 deg. B. Instead of the titanium solution (5 grammes per litre) a concentrated solution of stannous chloride can be used.

Knaggs, advises the following test: Dilute 5 *c.c.* of a solution of Benzopurpurine 4 B in 10,000 times its weight of water to 100 *c.c.*, and dye the cotton with the solution at the boil. On then adding 2 *c.c.* of strong hydrochloric acid, mercerised cotton becomes red, whereas unmercerised cotton takes a blue black.

David, depending upon the fact that a second mercerisation does not further increase the affinity of the cotton for dye, stretches the yarn or fabric to be tested, wetting one portion of it with caustic soda lye of 40 deg. B.; another portion of the material with the same lye previously diluted with its own weight of water, and a third portion of the material to be tested with the same lye diluted with twice its own weight of water. The goods are then rinsed, soured, again rinsed and dyed with a substantive dye, under tension the whole time. If both mercerised and unmercerised cotton are present, the three places will show differences in tint, whereas if the whole of the cotton has been mercerised, no change in shade will be seen. *Färber und Wäscher*.

FAT IN SILK. Fat has been used since the 'eighties for adulterating raw silk, and makes its degumming more difficult. A compound used for this adulteration in Italy consists of common salt, soap, unsaponified grease, heavy petroleum oil and gelatine, and contains the same organic elements as silk itself. It increases the weight and volume of the raw silk, but not its strength.

New Dyestuffs.

By H. P. Page.

Dyed samples, with details of procedure, of seven new dyes, by the *Elberfeld Co.*, have reached our offices. They present most exquisite shades in their lines. The first six quoted, refer to the Cotton Industry (Yarns and Fabrics) the fifth besides this to the dyeing of half-wool, half-silk as well as all silk, whereas the last is destined for wool prints.

PARA BROWN R is intended for the dyeing of cotton goods either in the jig or in the dyebeck with Glauber's salt and soda ash, and then rendered fast to washing by developing on the padding machine with Paranitraniline. It yields clear discharge effects with Rongalite C or similar discharging agents, a feature of special moment with mercerized goods.

ALGOLE RED 5G (in paste) if dyed in the Hydro-sulphite vat, yields clear yellowish pinks, or from salmon to brick shades of scarlet, of excellent fastness. By combining the new product with Algone Red B, red shades very similar to Turkey Red can be produced, whilst with Algone Orange R or Algone Yellow R, bright orange and Flesh colors can be easily obtained. The dyestuff for this reason is not only valuable as a self-shade but also as a combination color of standard fashion shades. Its excellent properties, as fastness to water, washing, boiling, chlorine, acid, alkali, rubbing, ironing, cross-dyeing and light, adapt the new dyestuff exceedingly well for the production of fast red on yarn and pieces. Material dyed in this way is particularly suitable for wash articles, such as blouses and shirtings, for embroidery goods, napkins and borders of towels, as well as for casements and upholstery cloth.

KATIGEN DEEP BLACK BW, WR, and FF. The first two brands are distinguished by their excellent solubility, as in spite of their great coloring power, they are, in the first bath, dyed with only $1\frac{1}{2}$ times as much sulphide of soda cryst. as color taken (or half the amount concentrated sulphide). Both brands yield very full bloomy shades of black. Brand FF, approaches Aniline Black nearest in shade. All three brands, especially BW and WR are well adapted for the dyeing of loose cotton, cops and cheeses in machines; the FF brand on account of its shade, being especially valuable for the dyeing of piece goods. Besides Black, these three dyes are very suitable for the dyeing of fast greys, or as combination colors for Olives, Browns, etc.

BENZO FAST SCARLET 7 BS yields a full bright red, on loose cotton, yarn and piece goods. On account of its good fastness to acid, it is also used for mercerized material. Apart from cotton dyeing, this dyestuff is also adapted for half-wool, half-silk and all silk; on the latter material very pleasing full Reds are obtained.

ALIZARINE NAVY BLUE W. PASTE, (patented) is intended for wool-printing and is applied with acetic acid or oxalate of ammonia, being fixed by steaming for 1 to $1\frac{1}{2}$ hours. The shade of this color is full and clear; the printed effects produced, being very even and rather fast to light and washing. It has the property of penetrating well to the back of the cloth.

DYEINGS FAST TO LIGHT ON YARNS, for Carpet and Upholstery Goods is the subject of a most elaborate Sample Card of the *Cassella Color Company*. One hundred and sixty-eight samples are given, covering most every shade of color possible to be used in the Carpet and Upholstery Trade; every color being shown in a variety of tone. The Cassella Color Company at the same time has issued a Sample Card on

DYEING LOOSE WOOL FAST TO FULLING, produced with Anthracene Chrome Colors (After-Chromed and on Chromed Wool). One hundred and eighty samples comprise the collection, with full directions.

NEW VACUUM DYEING MACHINES

For Raw Stock Dyeing and Bleaching.

T. Frusher, 59 Pearl Street, New York, selling agent for the Vacuum Dyeing Machine Co., Chattanooga, Tenn., has recently equipped the following mills with the latest type of dyeing machines, viz: Massachusetts Cotton Mills, Lowell, Mass.; Otis Co., Palmer, Mass.; Lancaster Mills, Clinton, Mass.; Oxford Linen Co., No. Brookfield, Mass.; Hamilton Mfg. Co., Lowell, Mass.; and other orders from large Cotton Mills in New England States, the South and Europe are now being filled as fast as possible.

"Double Service" Sheet Packing.

It is a well known fact that the true cost of Sheet Packing is by the surface measurement or the square yard, and it is a pleasure to find a progressive firm who has adopted an up to date policy of guaranteeing the weight per square yard of their highest grade sheet packing in this way, as it removes the temptation for loading with cheap chemicals in order to increase the profits of the packing sold by the pound.

The Double Service Packing Co., with headquarters at 208 Chestnut St., Phila., guarantee the weight of their *Double Service* Sheet Packing by charging a net price per square yard and with the further guarantee that it never deteriorates.

These two important facts are only worthy of consideration when they apply to a packing of proven merit such as the *Double Service* Brand, which is best known as the only sheet which cannot be imitated, and is warranted safe for all pressures and temperatures of steam, water, acids, ammonia, vibrating joints, gasoline, etc. In fact, it is the only sheet on the market which combines all the good points of the highest grade sheets known to the packing art, and *guaranteed* to do more than *all other sheets combined*, regardless of the high prices charged for them. It is the *only* "Fool Proof" sheet on the market, because *cheap* enough for low pressures on account of its light weight and non-deteriorating qualities, while it is the *best* sheet for high pressures. *Use this one* packing for all purposes.

The sheet is finished with graphite so that the gaskets are ready for use as soon as cut, thus saving the delay, labor and dirt of the old graphite pot which you can never find when wanted; with the result that gaskets are often put in place without graphite, and this means more work, delay and expense to chisel them out when joints are broken.

"MASON" MACHINERY FOR THE SOUTH.

The Mason Machine Works of Taunton, have recently shipped their "Mason Cards" to the Fairfield Cotton Mills in Winnsboro, S. C., and their "Mason Spinning Machinery" to the Carolina Cotton Mills of Greenville, S. C.; erectors of theirs are now putting said machinery in operation. The Mason Machine works are also equipping the mill at St. Paul, N. C., with their machinery.

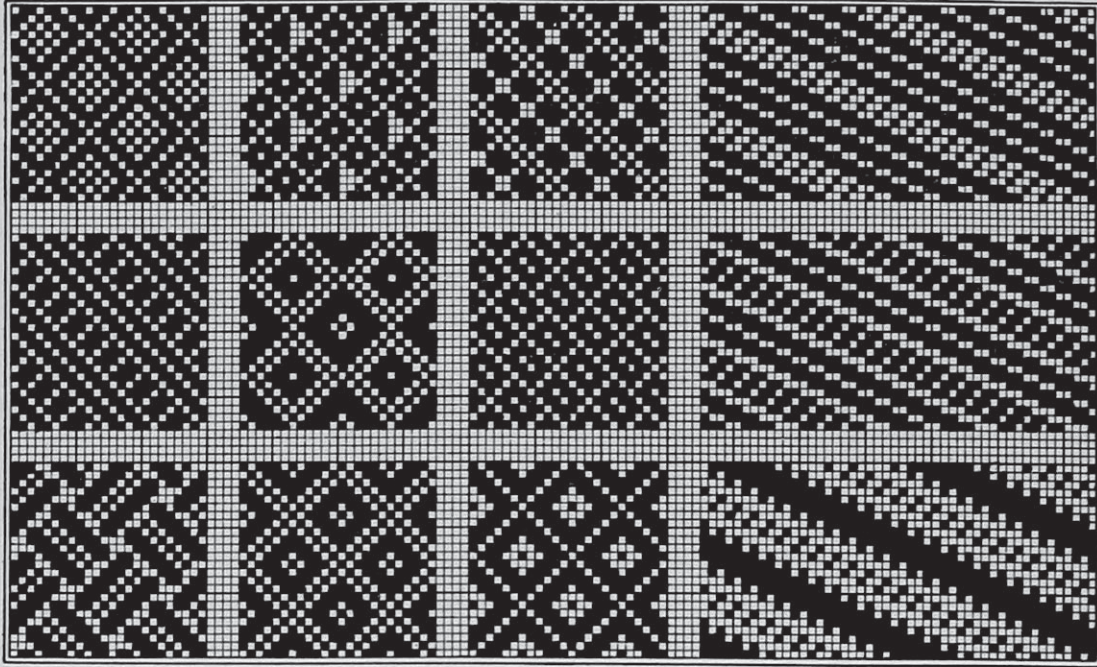
DICTIONARY OF TECHNICAL TERMS RELATING TO THE TEXTILE INDUSTRY.

(Continued from page 126.)

- GINNING:**—The mechanical process by which the cotton fibres, when ripe, are separated from the seeds.
- GIN-SAW:**—One of the series of fine toothed circular saws, of the saw gin, which engage the fibres of the seed cotton, and pull it from the seed through the apertures of a grate of steel bars or ribs, into which the saws revolve, but the seeds cannot follow, the latter in turn falling out of the machine through a slit below the ribs.
- GINGHAM:**—A name derived from Guingamp, a town in Brittany, France, where goods of this class were at one time extensively manufactured. A cotton fabric woven of white, bleached and dyed yarns, in a single color or color combinations.
- GLACÉ:**—A lustrous effect imparted by weaving threads of two or more tones and giving the fabric a special finish; also known as *Changeant*.
- GLASS-CLOTH:**—An abrasive cloth, made by sifting finely powdered glass on cloth covered with glue, and used for polishing surfaces.
A fabric made of threads of glass, which are very pliable when extremely thin.
- GLAUBER'S SALTS OR SODIUM SULPHATE:**—Glauber's salts is used in dyeing wool in acid bath, aiding the dye to go on evenly. The desiccated Glauber's salts is the more economical.
- GLAZING, GLOSSING OR POLISHING:**—A high lustrous finish produced upon cotton cloth by the action of heated rollers working in contact with each other; one of which, revolving faster than the other, not only presses, but at the same time polishes the surface of the cloth under operation, thus producing the gloss.
- GLORIA:**—The name given to a fabric made with a silk warp and a wool filling, the silk warp being floated on the face of the cloth as much as possible to give it the characteristic lustrous appearance. Gloria cloths are best known as a covering for umbrellas and as dress goods. They are dyed all colors, and are distinguished for their softness and high luster, being made from the best organzine silk for a warp and fine woolen yarns for their filling. The fineness of the filling gives the fabric a firm and even appearance.
- GLOSSING:**—In silk manufacturing, the operation of steaming and twisting the hanks of silk after dyeing, when perfectly dry. They are then given a stated and progressive tension for the purpose of separating double fibres and thus imparting an additional luster.
- GLUCOSE:**—Glucose $C_6H_{12}O_6$ is prepared from starch by the action of sulphuric acid, or of hydrochloric acid. It is most often met with as a colorless syrup, or an opaque solid, and is soluble in water. When used in the finishing of cotton goods it imparts to them a full, stiffish, dull finish, not very crisp. It is not a very good finishing material, as it is liable to fermentation and therefore to mildew. Mixed with chloride of zinc and chloride of magnesia it is often sold as *Glycerine substitute, Epsom softening, Crystal finish, etc.*
- GLUE OR GELATINE:**—The organic constituent of bones, cartilage, etc. It is not much used in the finishing of cotton fabrics except when an extra weighting is required, when it is added in small quantities on account of its great binding properties; holding larger quantities of weighting substances like china clay, than flour or starch. It has to be used hot, to enable the cloths to be evenly coated; its gelatinizing properties being so pronounced that it cannot be used cold, even in so weak a solution as 2 parts in 100 of water.
- GLYCERINE:**—A by-product in candle and soap making, and of great importance to the finisher of cotton fabrics, who gets it either in a brown or a white state, both being equally serviceable. The brown variety is used for colored goods; the white, for white or pale tinted goods. Glycerine absorbs moisture from the atmosphere readily, which property gives it its value to the finisher. It gives to the cloth a nice soft handle, desired for certain finishes; however, too great an excess must be avoided as otherwise a sticky feel will be the result.
- GOAL:**—The English term for a gap caused by the cloth being drawn forward without the filling interweaving, used to separate the ends of two pieces of cloth on the loom.
- GOBELIN:**—A French tapestry of silk and wool or silk and cotton, relating to the Gobelin's factory in Paris, or to its tapestries.
- GOLD LACE:**—A braid or gimp, in ancient times made of gold or silver wire; in modern times of silk thread or cord wound around by thin flat ribbons of gold, used as a decoration for uniforms and church costumes.
- GOMEIN OR GOMMELINE:**—For Brown Dextrines.
- GORING:**—A piece of cloth cut diagonally, in order to increase its apparent width or to have it set properly, as to a sail; a gore.
- GOSSAMER:**—A thin unfinished cotton fabric, coated with a rubber composition so as to make it water-proof.
- GOSSYPIUM:**—The generic name, originally given by Pliny, to the cotton plant; belonging to the natural order Malvacæ. Its chief commercial types are Barbadosense, Herbaceum, Hirsutum, Arboreum, Neglectum and Peruvianum.
- GOUTY:**—In silk throwing, a thread having on it, thick, rough places.
- GOVERNING MOTION:**—The governing motion, or *strapping* motion of the mule, by varying the position of the quadrant nut automatically as the cops are spun from the bare spindle to the required thickness, thus assisting the quadrant in making compensation for the ever-increasing diameter of the cop. These motions should cease to work when the cops have attained their full thickness, until doffing again.
- GRADING OF WOOL:**—The sorting of fleeces into qualities without untying them.
- GRAINE:**—The eggs of the silkworm.
- GRANITE:**—A combination effect, where diverse colors are intermingled, resembling the granite stone in color.
- GRANITE WEAVES:**—A system of weaves producing in the fabrics broken-up effects. They have for their foundation the satin weaves, although some of them are constructed by different methods.
- GRASS CLOTH:**—A thin, light material resembling linen, made in China and the East, from the fibre of *Boehmeria nivea* and other plants of that nettle family; the name originated by foreigners in Canton, thinking the same to be made of some sort of grass.

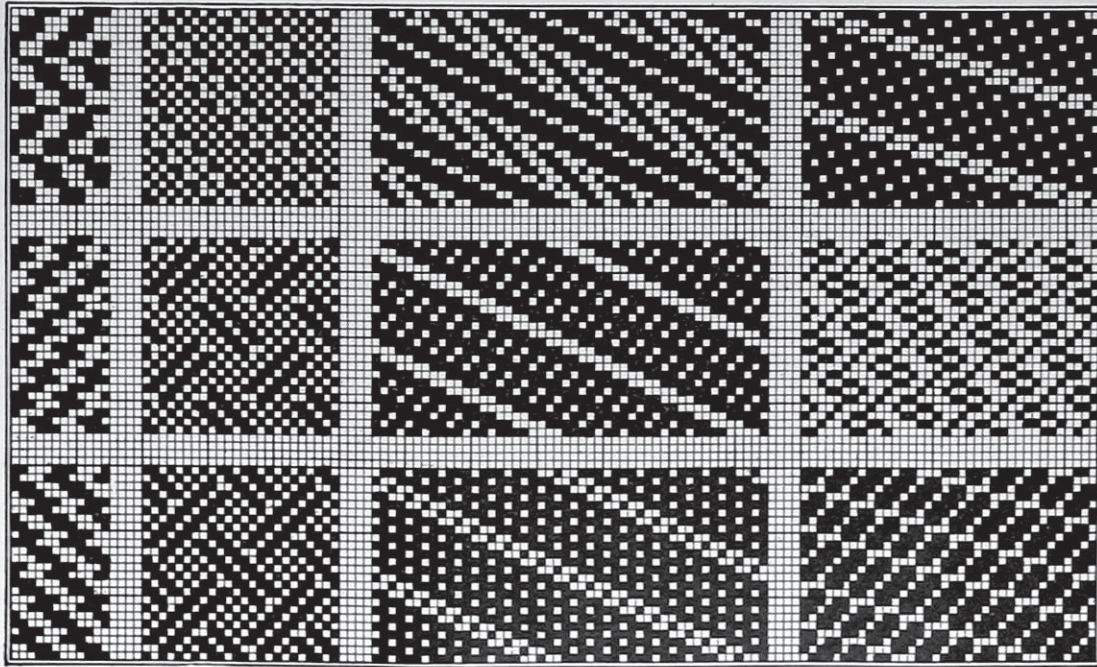
DICTIONARY OF WEAVES.*

TWELVE HARNESS



12 X 12 and 12 X 24

TWELVE HARNESS



12 X 6; 12 X 12; 12 X 24 and 12 X 36

*Complete, this Dictionary will contain over TWENTY THOUSAND PRACTICAL WEAVES, taken from woven Fabrics. About One Thousand Five Hundred of them have thus far appeared, and can be obtained by ordering back numbers.

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maintain that standard. Moreover, Fast Colors are *Guaranteed*—a feature of vital importance.

CHENEY SPUN SILK YARNS

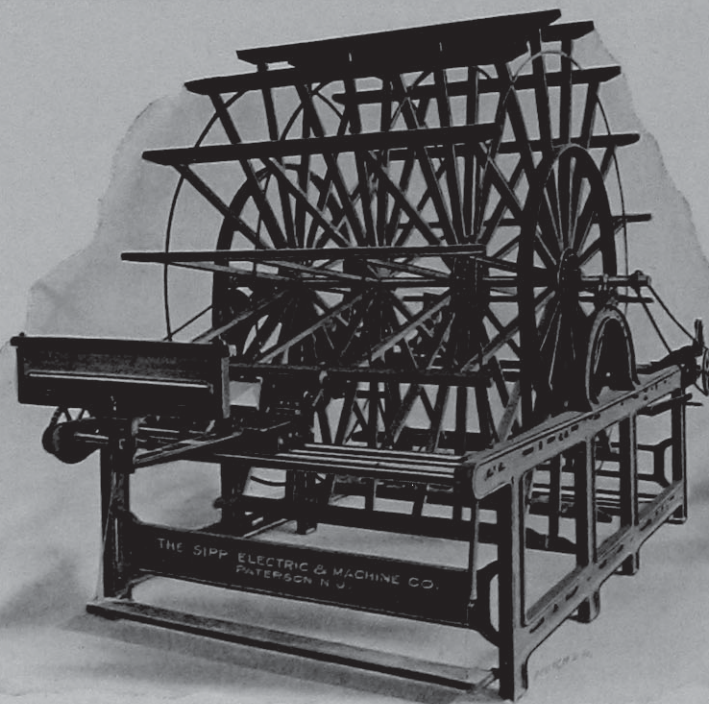
are made in the Gray or Dyed; on Spools or Cones, Warped or in the Hank. Organzines, Trams and Singles—full weight—fast colors. Special Yarns made to order for all sorts of Silks or Silk Mixture Goods. Manufacturers' orders promptly executed. Also makers of

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Sipp Electric & Machine Co.
Whitin Machine Works.

Wool Combers.

Crompton & Knowles Loom Works.

Woolen Machinery.

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Crompton & Knowles Loom Works.
Hunter, James, Machine Co.
Lever, Oswald Co., Inc.
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Woonsocket Machine & Press Co.

Woolen Yarns.

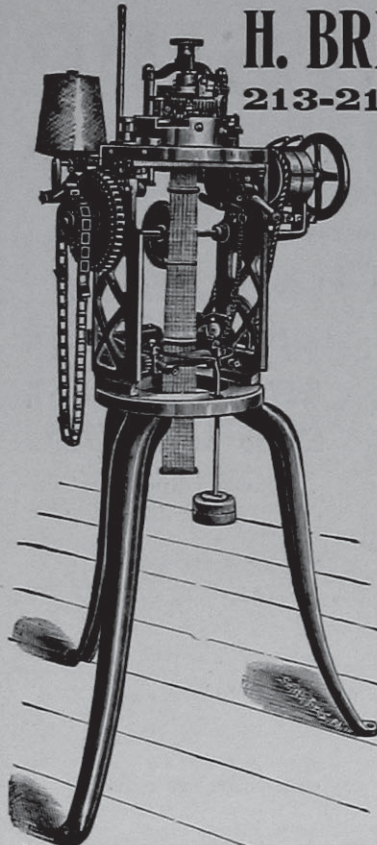
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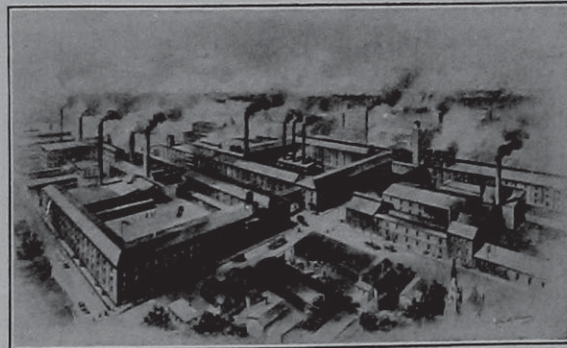
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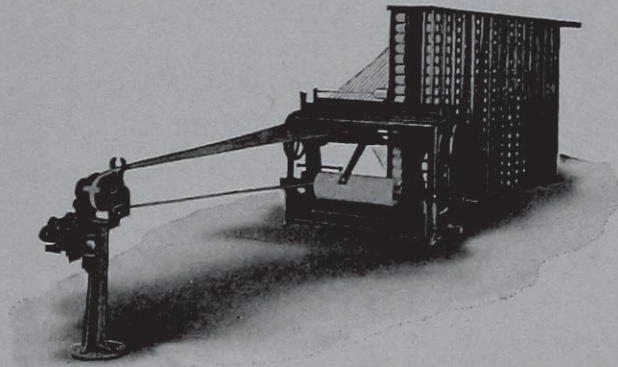
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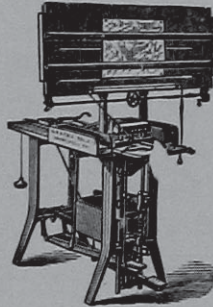
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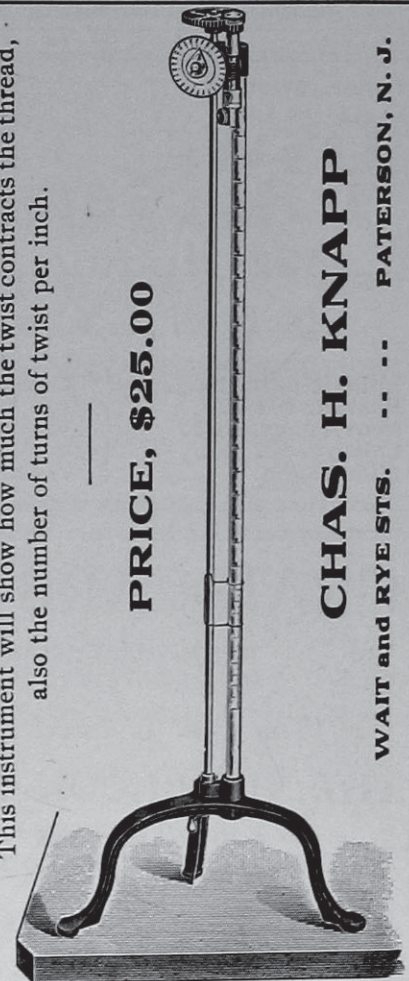
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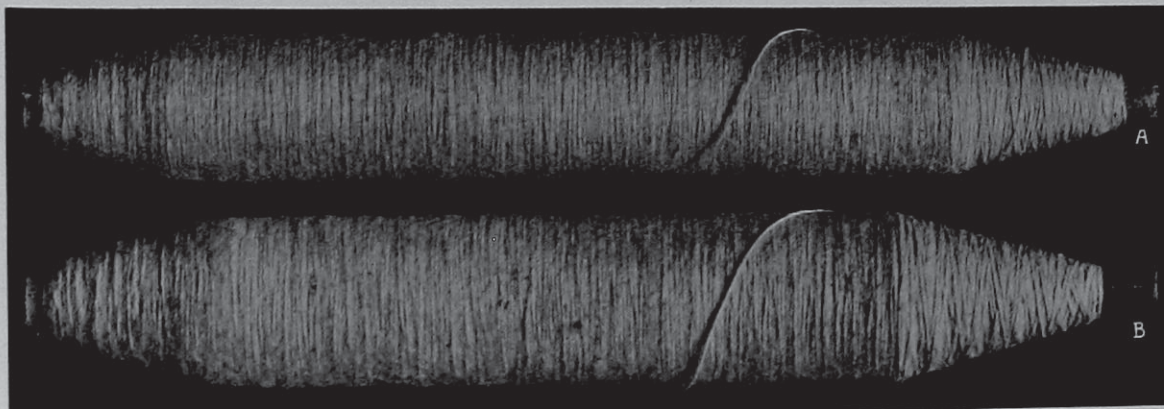
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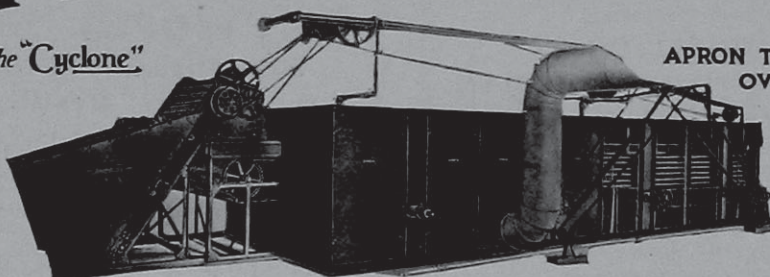
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MILL NEWS

Philadelphia. A fire in Kensington, April 24th, caused more than \$350,000 damage to Textile Plants at Huntingdon and Howard streets. Twelve firemen were badly injured. The loss has fallen on the following Textile Concerns: W. B. Threapleton's Sons, Hosiery Manufacturers; The Rock Carpet Co.; John Hamilton & Son, Carpet Manufacturers, and the Girard Worsted Mills, manufacturers of Men's Wear and Dress Goods.

Theodore M. Hillsley, secretary and general manager of the Stead & Miller Company, manufacturers of Upholstery Goods, and treasurer of the Star & Crescent Co., died suddenly, after a brief illness.

The Ivins, Dietz & Metzger Company, carpet manufacturers, have purchased the mill properties at the northeast corner of Huntingdon and Seventh streets, for the purpose of erecting a five-story reinforced concrete manufacturing building, 184 by 210 feet. The new mill calls for an expenditure of \$150,000, while \$100,000 will be used in equipping the same with machinery.

The plant of the Landenberger Manufacturing Co. is running on a day and night schedule on ladies' dress goods.

Allentown, Pa. Klotz & Bregenzer are adding new looms with the necessary auxiliary machinery to their Rittersville ribbon mill.

The United Textile Corporation, a recent consolidation of five concerns, with John S. Mack as their President, and capitalized at \$2,000,000, has purchased the W. C. Urner silk mill. Ribbons will be manufactured exclusively at this factory.

Operations have commenced at the silk mill at Walnuptport, machinery has

been installed, and if a success more will be added.

Franklinville, Pa. The Franklinville Cotton Mills, which have been shut down for several years past, have resumed operations. E. W. Thomas is the manager, and W. G. Nichols the superintendent.

Lebanon, Pa. \$35,000 are thus far subscribed towards the new silk mill, with further pledges in sight.

Paterson, N. J. The Weidman Silk Dyeing Company's plant, one of the largest of its kind in the world, it is reported, has been sold to a foreign syndicate of dyers for \$2,500,000, Mr. Weidman being given two years in which to close his connection with the plant.

Plainfield, N. J. The glove factory, operated by Perrin Freres et Cie, has been sold to the Rosenthal Brothers, silk importers, of New York, who will convert the factory into a silk mill, starting with about fifty looms, which they hope to soon increase to 200.

Amsterdam, N. Y. Mr. Henry Hicks, until now the Superintendent of the well-known Klaunder-Weldon Co. of this city, has sailed from Amsterdam for England, to take charge of the ever-growing interest of their concern abroad, as their European representative.

Hornell, N. Y. F. P. Merrill, proprietor of the Merrill Silk Mills in this city, together with several of the leading business men, is to engage in the manufacture of silk hosiery.

Hudson, N. Y. The Athens Knitting Mill has resumed operations after a long shutdown.

Mohawk, N. Y. The Augusta Knitting Co., of Utica, N. Y., has purchased the three-story brick mill of the Paragon

Knitting Co., which has been idle for some time.

Utica, N. Y. The knitting mills in this city and vicinity are being operated on a full-time schedule with a full complement of help, while the Capron Knitting Co. and the Canasawacta Knitting Co. are running overtime.

Dalton, Mass. Dalton Woolen Mills have started up under the management of Mr. Sawyer, formerly of Sawyers, of Dover, N. H., and a Mr. Regan, it is reported, who had been associated with the A. W. Co.

Fall River. The Barnard Manufacturing Company is planning an addition, to provide for an increase in its carding, etc., departments.

It is reported that the Algonquin Printing Company intends to erect a 50,000 spindle, print cloth mill.

New Bedford, Mass. The New Bedford Cotton Mill has been incorporated. The new mill will be located on the north side of Coffin avenue, and will run north on Church street to Collette street, and will be a million dollar cotton manufacturing plant, for the finest cloth that can be made.

Pittsfield, Mass. M. Einstein, formerly of the Shackmaxon and later Designer of the Puritan Mills, has taken the position of Worsted Superintendent for the Pontoosuc Woolen Co.

Salem, Mass. About 2,000 hands employed by the Naumkeag Steam Cotton Company had their wages advanced about 5%.

Central Falls, R. I. E. H. Barnes & Co., of New York, have purchased a tract of land on the easterly side of High street for the erection of a silk weaving plant.

(Continued on page xiv)

BOOKS ON TEXTILE SUBJECTS.

Wool Dyeing (Part 1), by W. M. Gardner. Price \$2.00.
TABLE OF CONTENTS: Fibre, Scouring, Bleaching, Water, Mordants, Assistants and other Chemicals.

Wool Dyeing (Part 2), by Gardner and Knaggs. \$3.00.
TABLE OF CONTENTS: Classification of Coloring Matters; Natural Dyestuffs: Logwood, Redwoods, Madder, Cochineal, Kermes and Lac-dye, Orchil; Cudbear and Allied Coloring Matters, Yellow-Dyes, Indigo; Artificial Dyestuffs: Classification of Coal-tar Dyes, Artificial Mordant Dyes, Acid Mordant Dyes, Acid Dyes, Direct Cotton Dyes Suitable for Wool, Basic Dyes, Dyes Applied by Oxidation, Reduction and other Special Processes, Metallic Dyes, Methods of Dyeing Wool in Various Forms, Suitability of Dyes for Different Classes of Work, The Theory of Wool Dyeing.

The Dyeing of Cotton Fabrics, by F. Beech. Price \$3.00.
TABLE OF CONTENTS: Fibre; Action of Alkalies, Acids and Oxidising Agents; Bleaching; Dyeing Machinery and Manipulations; Principles and Practice of Cotton Dyeing; Dyeing Unions, Cotton-Wool, Cotton-Silk; Washing, Soaping, Drying; Testing Color; Experimental Dyeing and Comparative Dye Testing.

Silk Dyeing Printing and Finishing, by G. H. Hurst. Price \$2.00.

TABLE OF CONTENTS: Fibres; Bolling Off; Bleaching; Dyeing Blacks and Fancy Colors; Weighting; Dyeing Mixed Fabrics; Printing; Dyeing and Finishing Machinery and Processes.

Dyeing of Textile Fabrics, by Hummel and Hasluck. Price \$2.00.

Three Volumes Bound in One.
Vol. 1: Textile Fabrics and Their Preparation for Dyeing.
Vol. 2: Coloring Matters for Dyeing Textile Fabrics.
Vol. 3: Mordants, Methods and Machines used in Dyeing.

Wool, Cotton, Silk; Fibre to Finished Fabric, by Posselt. Price \$3.50.

TABLE OF CONTENTS: Raw Materials; Preparatory Processes; Carding, Drawing, Spinning and Twisting; Winding, Warping; Weaving Machinery and Supplies; Knitting, Processes and Machinery; Dyeing, Bleaching, Mercerizing, Processes and Machinery; Finishing, Processes and Machinery; Heat, Power and Transmission.

Color in Woven Design, by R. Beaumont. Price \$7.50.

This work contains on 32 plates 126 colored illustrations of Diagrams illustrating the Mixing of Colors; Fancy Yarns, Fancy Cassimeres, Worsteds, Trouserings, Coatings, Suitings, Ladies Dress Goods, Cloakings, Fancy Cotton and Silk Fabrics. Besides said 126 colored illustrations, the work contains 203 illustrations, in black and white, of Weaves and Color-Effects in Fabrics, etc., accompanied by 440 pages of reading matter.

Chemistry of Dye-Substances, by G. von Georgievics. Price \$4.50.

A textbook presenting to the student in as condensed a form as possible the extremely wide domain of the modern chemistry of dye-stuffs; bringing into prominence all the relations known to subsist between the various dyes and groups of dyes, as well as the connection between color and constitution, since the proper appreciation of these relations forms the main object of color chemistry.

The Jacquard Machine, by E. A. Posselt. Price \$3.00.

TABLE OF CONTENTS: Different parts of the Jacquard Machine and its Method of Operation; The Jacquard Harness; The Comberboard; Tying up of Jacquard Harnesses for all kinds of Fabrics, Modifications of the Single Lift Machine; Stamping, Lacing and Repeating of Jacquard Cards; Practical Hints on Jacquard Designing.

Testing of Yarns and Textile Fabrics, by J. Herzfeld. Price \$3.50.

A Guide for the Manufacturer and Large Purchaser, who observe definite specifications to insure standard material and workmanship; also giving a collection of tests, both of physical and of chemical nature.

Woolen Spinning, by C. Vickerman. Price \$1.75.

TABLE OF CONTENTS: Fibre, Supply, Sorting, Scouring and Drying, Bleaching and Extracting, Dyeing, Burring, Mixing and Oiling, Carding, Spinning, The Mule, Miscellaneous.

Wool Combing, by H. Priestman. Price \$1.50.

TABLE OF CONTENTS: Fibre, Washing, Water, Carding, Preparing, Intermediate Processes, Combing, Finishing, Tops and Top Testing.

Silk Throwing and Waste Silk Spinning, by H. Rayner. Price \$2.50.

A Treatise on the Principles of Silk Throwing and Waste Silk Spinning, with Illustrations and Descriptions of the Machinery used.

Textile Calculations, by E. A. Posselt. Price \$2.00.

A Complete Guide to Calculations Relating to the Construction of All Kinds of Yarns, Fabrics, and the Analysis of Cloth.

Cotton Spinning, by T. Thornley. 3 Volumes. Price \$6.50.

A Complete Self-Instructor (with Questions and Answers) on this subject, treating machinery and processes as used abroad.

The above books, as well as any other books on Textile Subjects, no matter where published, sent charges prepaid. Remittances should be made by Check or Money Order, or in Registered Letters. Not responsible for money lost, when otherwise sent.

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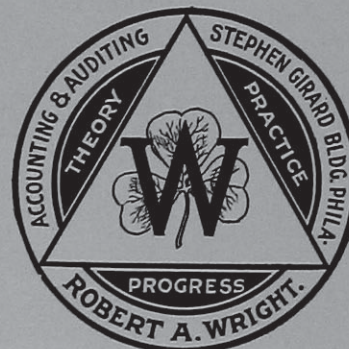
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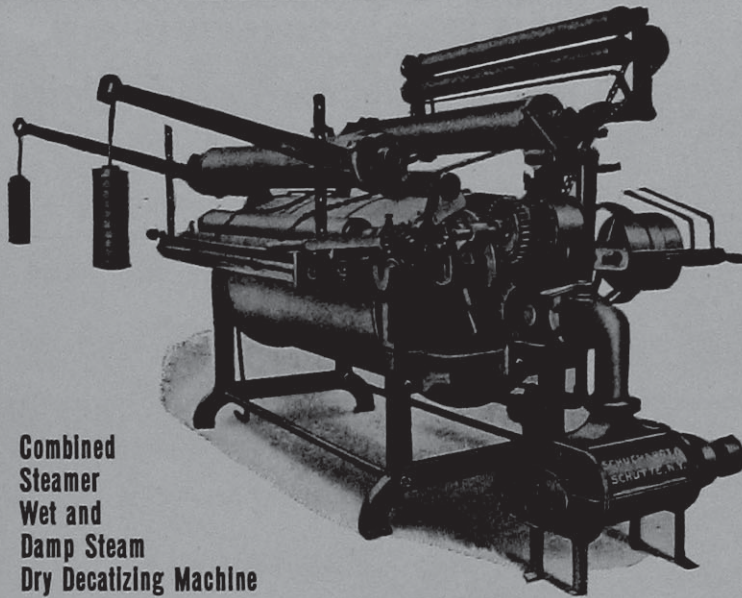
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WE HAVE THE GOODS

DOUBLE SERVICE PACKING CO., 208 CHESTNUT ST., PHILA.

Manville, R. I. The Independent Cotton Company is to erect here a weave shed and a three-story building, the shed to contain 1,000 looms, while the other building is to be used for spinning purposes.

Providence. Mr. John H. Jones has resigned his position as Designer with the Puritan Mills of Plymouth, Mass., and has accepted the Superintendency of the Ernscliffe Mills. Mr. Jones has been a very successful Designer in the Saranac, Oswego Falls and Puritan Mills for the past 14 years. He takes the new position with a good knowledge of his work.

The Bridgeton Worsted Company, incorporated recently, has leased the mills of the Laurel Hill Yarn Company at Bridgeton and is equipping the plant with 1,800 spindles.

The Continental Worsted Company, with a capital of \$50,000, has been incorporated. This company purchased, a short time ago, the Blanding mill property after said mill had shut down. Charles A. Robinson, formerly with the Earncliffe; Edward B. Carleton, of Boston, and William W. Brooks, of Brookline, are named as incorporators.

A new Public Finishing concern has been formed here, James Friedrichs, of the Friedrichs Dyeing Company, Woonsocket, being the prime mover. Accommodations have been leased in the old Paine & Sackett mill and the machinery for the new concern is ordered.

Wickford, R. I. The Premier Worsted Mills have installed additional machinery.

Woonsocket, R. I. The J. W. Bishop

Company, of 107-109 Foster street, Worcester, has the contract for the erection of the new buildings for the French Worsted Company, of which Governor A. J. Pothier, of Rhode Island, is treasurer.

Danielson, Conn. The Quinnebaug Company has discarded 100 old looms to make room for an equal number of Northrop looms. Nearly 400 more looms will also be discarded before the end of June, when it is expected that the remainder of the 480 Northrop looms, to be installed by the Draper Company, will have arrived at the plant. When these are in place the company will then be operating about 700 Northrop looms.

Jewett City, Conn. A. B. Burlinson & Co. have adopted a full-time schedule, the full quota of help being employed.

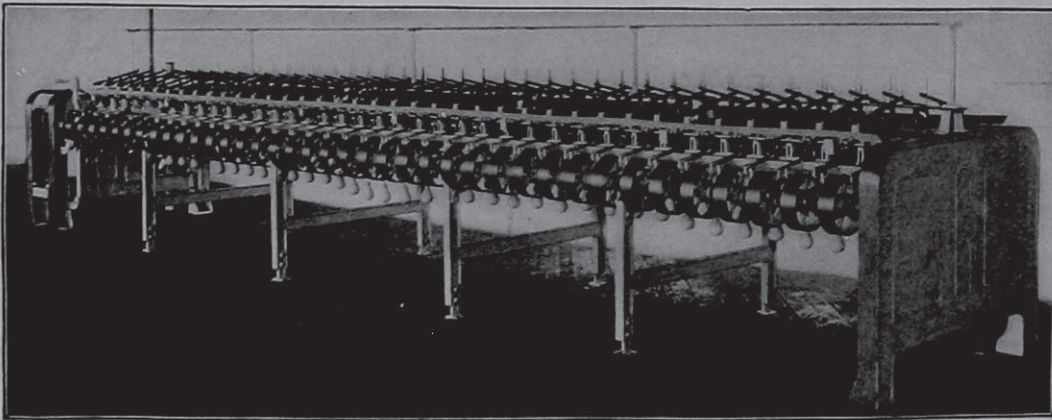
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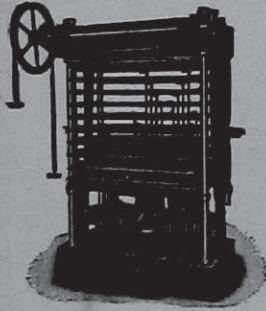
animal & vegetable fibres or their mixtures is the best.
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Builders of Cotton and Woolen Machinery



"HURRICANE" DRYERS

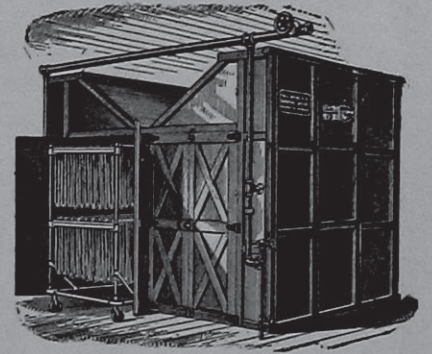
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Braiding Machinery, both American and German types, for making Dress Braids, Shoe and Corset Laces, Underwear, Trimmings, and all kinds of Round and Flat Braids.

Rockville, Conn. The Hockanum, Springville, New England and Minterburn factories, it is reported, will make an increase in wages in certain departments. The American Mills Company will also advance their help on the same scale, the increase averaging from 7 to 20 per cent. Sewers, dressers, loom-fixers and pattern weavers are affected.

Putnam, Conn. The Putnam Silk Company has perfected organization, electing George A. Hammond president, Oscar S. Rich secretary, and Samuel Rich treasurer.

Lewiston, Me. It is reported that a new cotton mill is to be built here, which will give employment to from 3,000 to 4,000 people.

The Monadnock Cotton Mills, of Claremont, N. H., have increased the wages of their help ten per cent.

East Rochester, N. H. The Cocheco Woolen Manufacturing Company will resume operation. Mrs. Rindge, who owns the controlling interest in the Gonic and Cocheco plants, has decided to combine the management of the two plants, and to place S. B. Meader, Agent of the Gonic mills, also in charge of the Cocheco company.

Hagerstown, Md. The Hagerstown Silk Company will erect an additional building and install 60 more looms, its auxiliary machinery, electric motors, etc.

Apex, N. C. It is rumored that a company, capitalized at about \$20,000, for the construction and equipment of a knitting mill, will be organized here.

Laurinburg, N. C. Work has been started on the Waverly Mill, which, when completed, will be one of the largest cottonmills in this section of the State.

Mt. Pleasant, N. C. The James Knitting Mill has been organized by A. N. and C. F. James, and work on erecting the building has begun. The new concern, it is mentioned to us, will have a capacity of 120 doz. pair of hose per day.

St. Paul, N. C. The mill at this place, which is being equipped with machinery of the Mason Machine Works, will be ready for operation about June.

Tarboro, N. C. The Wilson & Dawson Hosiery Company is considering the installation of additional knitting machines as well as the erection of a dye house.

Thomasville, N. C. The Thomasville Picker Stick Company has decided to increase their capital so as to be able to double the present output of the plant.

Zebulon, N. C. Work has been started on the new \$350,000 cotton mills, of which Archibald Meldrum is the largest stockholder.

Chester, S. C. The Eureka Cotton Mill are to add about 8,000 spindles and 450 looms to their plant.

Greenville, S. C. The Board of Trade has invited the Executive Committee of the South Carolina Cotton Manufacturers' Association to hold their next meeting in this city.

The Carolina Cotton Mills of Greenville have received additional spinning machinery from the Mason Machine Works, of Taunton, and erectors are now putting same in operation.

The managers of the Woodside Cotton Mills have decided to spend \$500,000 on additions and improvements.

Newberry, S. C. The directors of the Newberry Cotton Mill have decided to

increase the plant by about 10,000 spindles and 300 looms.

Albany, Ga. Albany Cotton Mills have been organized recently with a capital stock of \$250,000; the following officers have been elected: W. W. Pace, president; C. M. Shackleford, vice-president; John A. Betjeman, treasurer; Edwin Sterne, secretary.

Columbus, Ga. The Perkins Hosiery Mills propose to enlarge their present plant to double its present capacity.

Hawkinsville, Ga. The Southern Cotton Mill Company will build an addition to their plant to accommodate 2,000 additional spindles.

Lafayette, Ga. The capacity of the Walker County Hosiery Mills, of Lafayette, is being doubled.

Macon, Ga. J. C. Moody, of Brunswick, Ga., will establish a hosiery knitting mill in this city.

Danville, Va. Plans are being prepared for an addition to the Dan River Power & Manufacturing Co. The company will erect a building 550 feet long by 150 feet wide, and install 50,000 spindles and 1,500 electrically driven looms.

Eufaula, Ala. 500 new Draper looms will be installed in the Eufaula mills.

Memphis, Tenn. Alexander Fish & Co., of Nashville, Tenn., will establish a branch handkerchief mill here.

Rockwood, Tenn. The Rockwood Hosiery Mills are adding a dye house to their plant. At present all of the fancy colored hosiery is being dyed in Chattanooga, but when the new building is completed all of this work will be done here.

"Textile Designing Simplified."

The object of this chart is to show how easy weaves for all classes of Textile Fabrics can be constructed; it will be a search light in the misty matters in the field of designing Textile Fabrics. Keep this chart of weaves for reference. Millions of new weaves can be obtained by it.

All weaves for Textile Fabrics have their foundation in Plain Twills and Satins.

PLAIN.—This weave and its sub-divisions are explained on the chart in the top row by 16 weaves, the sub-divisions covering common, fancy and figured Rib and Basket weaves.

TWILLS.—The foundation of constructing regular (45°) twills is shown by rows 2 and 3 with twenty six weaves, covering twill weaves all the way from 3 harness up to 13-harness. The sub-divisions of twills are quoted next on the chart, being Broken twills, Skip twills, Corkcrews, Double twills, Drafting twills, Curved twills, Combination twills warp drafting, Combination twills filling drafting, 63° twills, 70° twills, Wide wale twills, Entwining twills, Checker-board twills, Pointed twills, Fancy twills, thus covering every sub-division of twill weaves possible to be made.

SATINS are next shown, giving also their sub-divisions, viz: Double satins and Granites.

HOW TO PUT A BACK FILLING ON SINGLE CLOTH is shown below the satins by two examples, and at its right hand is quoted the principle of

HOW TO PUT A BACK WARP ON SINGLE CLOTH.

On the bottom line are given the four steps for:—
THE CONSTRUCTION OF DOUBLE CLOTH, 2 @ 1; and above the same one example, with the arrangement 1 @ 1.

THREE PLY CLOTH is shown by one example.

HOW TO BACK SINGLE CLOTH WITH ITS OWN WARP is shown by two examples.
WEAVES FOR SPECIAL FABRICS are quoted: Tricots (warp filling and Jersey effects), Rib fabrics, Honeycombs, Imitation Gauze, Velveteen, Corduroy, Chinchillas, Quilts Plush, Double plush, Tapestry, Crape, Terry, Worsted coating stitching, Huck, and Bedford cords.

HOW TO WORK THIS CHART OF WEAVES.

CAPITAL LETTERS of references refer to the plain weave and its sub-divisions.
SMALL LETTERS of references refer to twills and their sub-divisions.
NUMERALS of references refer to satins and their sub-divisions.

Example.—How to ascertain the construction of the weave at the right hand top corner of the chart; being the figured rib weave marked C C? These two letters of reference mean that said figured rib weave is nothing else but the combination of the 2-harness 6 picks common rib weave warp effect C, and the 6-harness 2 picks common rib weave filling effect C'.

Example.—The letter of reference *e*, underneath the first broken twill indicates that the same is obtained from the 1½ 4 harness twill *e*, (third weave on the second row); in other words, letter of references below each weave of any of the various sub-divisions refer always to the corresponding foundation weave.

Example.—Twill *t*, and *o*, are the foundation for the eight combination twills filling drafting, said common twills are drafted 1 @ 1, the different designs being obtained by means of different starting.

Example.—The wide wale twill *w'*, has for its foundation the 8-leaf *ss'u*, such as marked respectively *t* and *w'*, the latter two weaves have again for their foundation respectively the common twills marked *t* and *w'*.

Example.—Granites marked 8 have for their foundation the 8-leaf *ss'u*, such as marked 12 the 12-leaf satin.

Example.—Backed by filling *e* 8, means the common ¾ 4-harness twill *e*, (fifth weave on second row) and the 8-leaf satin is used in the construction of this weave.

Example.—The complete design of double cloth, marked *e* 8 A, means that the common 1½ 4-harness twill (*e*), the common plain (A) and the 8-leaf satin (8) are used in the construction.

Example.—Rib fabric A, indicates that the plain weave forms the foundation.
 It will be easy to substitute different foundations in constructing weaves for heavy weights. In reference to single cloth weaves we only want to indicate that by following rules shown in the chart, millions of new weaves can be made up from it.

