

present will form a gelatinous red precipitate which when allowed to settle does not interfere with the test for copper. Copper salts, when treated with a solution of potassium ferrocyanide, give a reddish brown precipitate. Iron if present will interfere to some extent with this test, because iron gives a blue precipitate with potassium ferrocyanide.

IRON exists in two forms, the protoxide and the sesquioxide. With potassium ferrocyanide, ferrous iron (protoxide) gives a white precipitate which turns blue on standing. With potassium ferrocyanide, ferric iron (sesquioxide) gives a deep blue precipitate of prussian blue. Another method of testing for ferric salts is by means of potassium or ammonium sulphocyanide. A dark blood red solution is produced with ferric salts. Ferrous salts may be tested for, with potassium ferrocyanide, a dark blue precipitate similar to prussian blue being obtained.

LEAD is tested for with potassium iodide. Lead salts produce a yellow precipitate with potassium iodide which dissolves when the solution is heated and reappears on cooling. Lead is also tested for with potassium chromate, with which it gives a yellow precipitate of chrome yellow, which does not dissolve when heated.

MANGANESE is tested for by adding lead peroxide and nitric acid to the solution; if manganese is present, a purple red solution is obtained.

ZINC is tested for with caustic soda. When caustic soda is added to a solution of a zinc salt, a white precipitate is obtained, which dissolves in excess of the caustic soda. When hydrogen sulphide is passed through this solution, the zinc is reprecipitated as zinc sulphide.

It is necessary when testing a chemical (by the above methods) to bring it into solution. This can be usually done by dissolving it in water; if it does not dissolve in pure water, it will probably dissolve in nitric or hydrochloric acid, or in a solution of caustic soda. If it does not dissolve, it cannot be tested for in this way, and probably it is sand or some mineral.

In testing for *hydrochloric acid* or any soluble *chloride* in a solution, add a solution of silver nitrate. If any soluble chloride is present, a white precipitate of silver chloride is obtained.

To test for soluble *sulphates* or *sulphuric acid*, add a solution of barium chloride; if present, a white precipitate is obtained.

Chromates give a yellow precipitate when a solution of lead acetate is added to them.

To test for *nitrates*, add a crystal of ferrous sulphate to the solution, then concentrated sulphuric acid, after which a brown color is produced on the surface of the ferrous sulphate (copperas) crystal.

(To be continued.)

Ciba Blue and Indigo-Salt.

Fehling having recently drawn attention to the practical advantages offered by ciba blue over indigo-salt in printing, and claiming the first-named as far superior, was contradicted by Neuenhaus, who championed the preference for indigo-salt. Fehling now

takes the opportunity of replying through the columns of the French *Revue*. He states that, in spite of the personal experience of Neuenhaus, he will stand by his original pronouncements, because he believes it cannot be justly contested that in developing after the application of the indigo-salt, some shrinkage of the cloth takes place, its fine feel is interfered with, and the whites are often greyish. When printing with indigo-salt the operation is followed by a passage at full width through a bath of caustic soda marking 20 deg. Bé., and at a temperature of 70 deg. C.

It is evident that any procedure that will reduce the possibility of forming creases in the cloth throughout its treatment is of some interest and value; nevertheless, it constantly happens that the selvages of the cloth crease and crimp under the action of the caustic soda, and this becomes evident either as it passes through the first squeezing rollers or when passing over the rollers of the washing machine. Neuenhaus regards it as convenient to ignore the definite action of the caustic soda on the cotton. He appears not to know that by immersing a piece of cloth in a solution of caustic soda that cloth becomes denser, it contracts, and the individual fibres swell out. This diminution in the superficial area of the cloth passed at full width through a bath of caustic soda at 20 deg. Bé. for the development of the indigo-salt is readily proved. Some pieces 22/26, measuring before the treatment with caustic 775 millimetres were after the passage no more than 737 millimetres. The amount of contraction is therefore about 4.9 per cent. It is quite true that this inconvenience may be easily remedied in the subsequent processes of printing.

Ciba blue and indigo-salt do not enter into comparison very closely, as their methods of application are altogether different. The employment of ciba blue is simple, and does not present any difficulties. Prints exhibit the same excellent properties of fastness as the dyeings. Though the shades given by the two products differ slightly, it is by no means a difficult matter to shade ciba blue, seeing that there are other suitable dyes at hand for the purpose. Indigo-salt was used at a time when indigo could only be printed with difficulty; but at the present time these difficulties have disappeared, and indigo-salt now finds itself confronted with very serious competitors in the shape of either the brominated indigos of Bayer, or in Ciba Blue.

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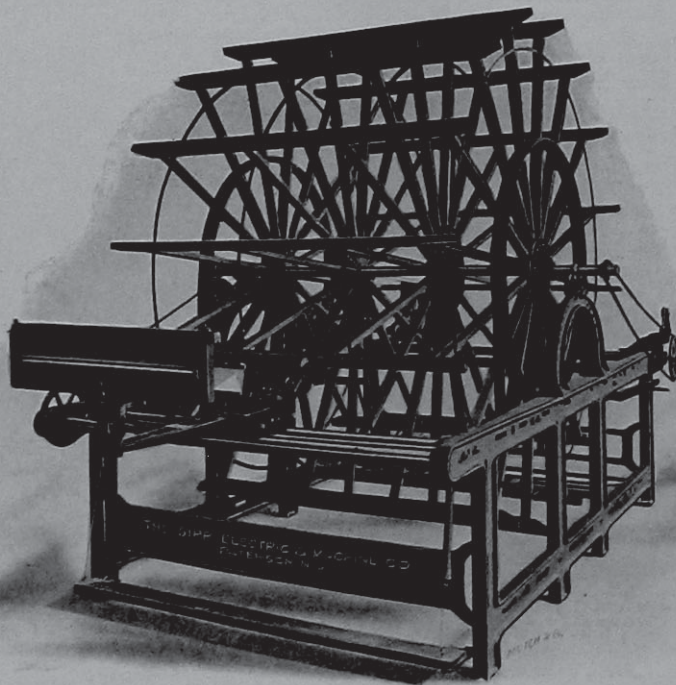
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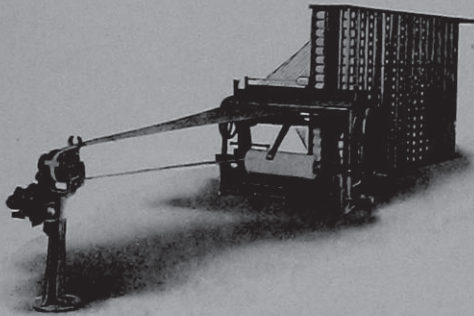
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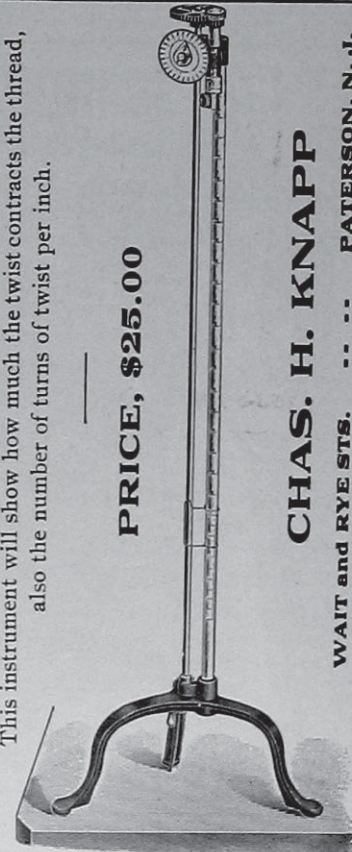
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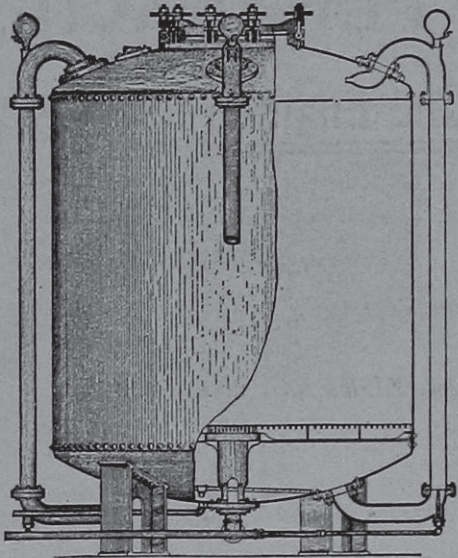
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Plate Iron Work of Every Description

The members of the Master Cotton Spinner's Federation in England who spin American cotton have decided to adopt a period of short time, and the mills will close on Saturdays and Mondays from now until the end of September. Business is very difficult, especially in staple yarns, and the movement initiated will, without doubt, be beneficial.

In connection with this movement, spinners on the Continent are also falling into line with regard to organized short time. Austrian spinners are curtailing their production to the extent of one-sixth during six months, and are endeavoring to increase this reduction to one-fourth. In Italy, spinners have been stopping one day per week during ten weeks, and a continuation of short time is also proposed. In Portugal, spinners are working short time, whilst in Belgium the Federation recommends the mills to stop one day per week for twelve weeks. The Rhenish-Westphalian cotton spinners have proposed a stoppage of 154 hours to the other German associations.

The labor conflict in Sweden, which originated in a dispute over wages in the woolen and cotton indus-

tries, is, at the going to press of this Journal, assuming large proportions. In the beginning 13,000 men were locked out; other industries since have become involved, until the Employers' Federation declared a lockout of the iron foundry hands, numbering about 30,000 men. This brings the total of the men locked out to 80,000. A general strike is threatened.

DICTIONARY OF TECHNICAL TERMS RELATING TO THE TEXTILE INDUSTRY.

(Continued from page 24.)

H.

- HABECK**:—An instrument with a hook at each end, used for dressing cloth.
- HABERDASHER**:—A dealer in small articles of dress and in ribbons, trimmings, thread, etc.; a dealer in hats.
- HABILIMENT**:—An article of clothing; a garment, garb, etc.
- HABIT CLOTH**:—A light broadcloth more particularly adapted for women's riding habits, also used for other outer garments.
- HABUTAI OR HABUTAYE**:—In the Japanese language, signifies soft as *down*. A soft, ribbed, white, washable Japanese silk fabric, one of the handsomest Japanese silks. It is a medium between crape and rep. Both, warp and filling are much thicker than those used in taffetas and twills, the filling being loose and peculiarly twisted; one thin, two-ply thread is wound in long spirals about a thicker, six-ply thread. It is made in all widths, from 12 inches for handkerchiefs, to 44 inches, the full skirt width.
- HACKLE OR HATCHEL**:—A tool for splitting or reducing flax, hemp or jute, to the finest condition they are capable of assuming, without detriment to the fibers.
- HACKLING MACHINE**:—A machine furnished with teeth or needles for splitting or reducing flax, hemp, or jute to the finest condition they are capable of assuming, as well as combing off all impurities from the fibres, leaving them straight and parallel. The combs or hackles used are of zinc or steel, and are of varying degrees of fineness; the process begins with a coarse comb and ends with a fine one.
- The fibres are hereby brought to lie almost parallel. The product obtained by the operation is dressed flax (*line*) and hackling *tow*; the latter being the short and tangled refuse.
- HAIK**:—The outside garment as is worn by Arabs and other Eastern peoples; it is an oblong piece of woolen cloth, woven with colored stripes.
- HAIR CLOTH**:—A fabric having a warp of either cotton or linen yarn, the filling being composed of the long hairs of horses' tails; used for stiffening in women's dresses, formerly much used for covering furniture.
- HAIR LINE**:—Effects in fabrics in which the color and texture are so combined so as to produce fine lines, running warp ways.
- HALCHING**:—In spinning, the entanglement of the coils of yarn at the cop nose.

THE NEW BRUNSWICK CHEMICAL COMPANY

New Brunswick, N. J.

Manufacturers of Sizing and Finishing Compounds for all Kinds of Fabrics, Gums, Softeners, Soluble Oils, Etc.

Special Preparations for Mercerized, and Silk and Cotton Mixed Goods.

HALF HITCH:—In lace making, the loop for tightening the thread on the bobbin; a rolling hitch.

HALF HOSE:—See Hose.

HALF MOURNING:—A mourning costume less somber than full or deep mourning, produced by the introduction of lavender, gray, and other neutral colors, into black.

HALF SILKS:—Fabrics constructed partly of silk and partly of cotton; in some cases the warp is of cotton and the filling of silk, in others a silk warp is used in connection with a cotton filling.

HAMBURG EDGING:—A kind of embroidery worked on cambric or muslin.

HAMMOCK CLOTH:—Generally made from a coarse, heavy count of cotton yarn (warp and filling). The better class is made with a texture of from 16 to 25 warp threads and 12 to 20 picks per inch; the cheapest grades being made with as low a texture as 8 by 6. Fancy weaves are used with the higher textures quoted, the 8 by 6 texture referring to interlacing with the plain gauze weave.

HAMPSHIRE DOWN SHEEP:—A native breed of England, originated, years ago, between the white faced, horned sheep of the Hampshire District and the pure South Down. The weight of this fleece is from 6 to 7 pounds, the fibre is longer but not as fine as that of the South Down.

HANGINGS:—Fabrics, like tapestry, used to drape or cover the wall of a room; curtains at doors or windows.

HANK:—A skein of yarn or thread of a fixed length; 840 yards for cotton and spun silk; 1,600 yards for wool, run system; 300 yards for wool, cut system; 560 yards for worsted; 1,000 yards for raw silk; 300 yards for linen, or jute.

HANK CLOCK:—In spinning, an attachment to fly frames, ring frames, or mules, for measuring and indicating the length of slubbing, roving or yarn made. It indicates the amount in hanks and fractions of hanks.

HAPLOMA:—An outer altar cloth.

HARD:—In Silk Manufacturing, used to distinguish such silk from soft silk, *i. e.*, silk from which the gum has been boiled out.

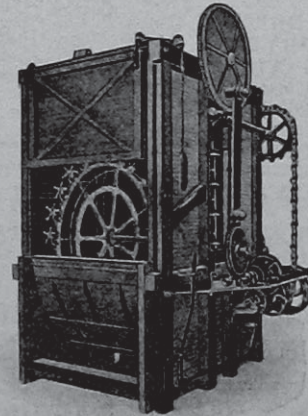
HARD WASTE:—Headings from finished cloth, old samples, woven waste made in the weave room by starting warps, hard twisted or double and twisted yarn wastes made in the weaving or spinning departments, etc.

20 PER CENT. SAVED

Silk manufacturers should realize the economies in dyeing obtained by the use of the Klauder-Weldon Silk Skein Dyeing Machines

Fully twenty per cent. in the waste produced in winding, besides seconds in weaving, is saved by their use.

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HARD WATER:—Water is generally spoken of as being so many degrees of hardness, and a degree of hardness implies more than one grain of bicarbonate of sulphate of lime per gallon. Less than six degrees or six grains of mineral substances per gallon constitutes soft water, and above six grains hard water.

HARL:—Filaments of flax or hemp drawn out or hackled.

HARLE:—See Boon.

HARNES:—A frame of wood or metal used in weaving, for holding the heddles in position in the loom and operating

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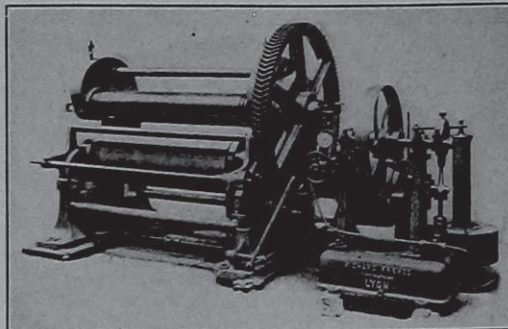
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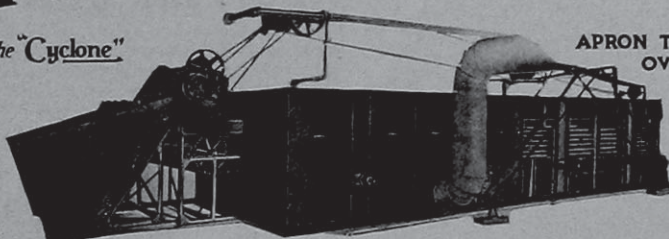
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WORCESTER, MASS.

the raising and lowering of the warp threads; also called Leaf, Shaft, Heald, or Stave.

HARNESS BOARD:—See Comber Board.

HARVARD:—Colored shirtings interlaced with twill, or a figured weave.

HASP:—A skein of yarn.

HATCHEL:—See Hackle.

HATCHING:—In embroidering and weaving, the art of disposing threads so as to give the effect of shading. A thread made for the purpose.

HATTER'S SILK:—Silks used by hatters for the ornamenting, trimming and lining of hats; being woven, dyed and printed especially for the purpose.

HAUM:—See Boon.

HEADSTOCK:—This, which is placed near the middle of the mule, is the centre of the controlling forces of the machine. At this point the motive power is received from the driving shafts, and this power is distributed from the headstock, by various appliances and in the ratio required, to the different parts of the mule. That part of a slashing machine which comprises the measuring mechanism, dividing rods and winding-on arrangement.

HEALD:—English term for harness, which see.

HEATHER SILK:—Trade name for a rough finished, pure dye, soft fabric, of a great variety of artistic color effects,

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resulting from the union of two contrasting colors or shades, both in warp and filling. An imitation in silk of the heather effects seen in Scotch woolsens.

HEATHER WOOL:—Wool or worsted yarn made for knitting and other fancy work, partly colored or mottled in various shades and producing work of a mixed or speckled color, thought to be like that of heather.

HEAVY SPAR OR BARYTES:—This mineral is the sulphate of the metal barium, BaSO₄, a white powder, insoluble in water and acids, it being one of the most insoluble substances known. It is perfectly neutral in all its reactions, and not liable to change; it is therefore a very suitable body for weighting cloth, but it imparts to the latter a harsh feel, not always desirable. Much depends on the fineness to which it has been ground. If comparatively coarse, it is not easily bound to the cloth, and therefore is apt to make the cloth powdery. Fine barytes is free from this defect. It occurs naturally in large quantities in two forms, crystalline and amorphous or massive.

HECK:—A vertical grated frame in a loom, beamer or warper; through the spaces of which pass the warp threads.

HECKLE:—Same as Hackle.

HEDDLE:—A series of vertical cords or wires, each having in the middle an eye to receive a warp thread, passing at their ends around parallel bars, together forming part of the harness. They work in sets of two or more, which, by rising and lowering, form the sheds for the passage of the shuttle, and interlace the warp threads with the filling.

(To be continued.)

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MILL NEWS

Philadelphia, Pa. The Germantown Braid Co. has doubled its capital stock from \$25,000 to \$50,000, in order to be able to double its manufacturing plant.

The Fidelity Finishing Works have installed a squeezer and dryer built by the H. C. Butterworth Sons Co.

A. J. Cameron & Co., yarns, will erect a three-story factory, 268 by 64 feet, at Glenwood avenue and Pacific street.

Robert H. Shaen, manufacturer of men's and women's wear, is adding looms to his plant.

Chester, Pa. The Emmott Worsted Spinning Co., manufacturing worsted yarns (Bradford system), is installing in their new two-story brick building, the new machinery recently arrived from England, consisting of four spinning frames, two twistors and one card.

Easton, Pa. Rochlen & Pittenger is the name of the new silk plant established for the manufacturing of broad silk, such as brown satin, black taffetas, etc. The looms and the necessary auxiliary machinery will be installed at once and additional machinery will probably be added within a few months after the mill goes in operation.

Elizabethtown, Pa. It is rumored that the Auto Knitting Mills, Inc., D. L. Saul, Pres., hosiery and underwear, of Harrisburg, will open a branch here.

Hazleton, Pa. The Duplan Silk Co., of this place, is one of our most successful silk mills in this country, largely due to Mr. Walter C. Muggli, one of our most widely known silk experts. The concern at present operates 800 looms in Hazleton. They are building a new addition, 200 by 200 feet, in order to produce the necessary room for new machinery, to be able to fill the constantly growing demand for their product.

Macungie, Pa. Ground has been broken for the erection of a new factory building by the Macungie Silk Company. The building will be 50 by 74 feet and one story high.

Pittston, Pa. The Alpine Knitting Co. will build a dye house to their plant.

Spring City, Pa. The Spring Ford Silk Co. has been incorporated with a capital stock of \$200,000. The incorporators are: Leo E. Schimpf, Thomas S. Kinney and John A. McCollum. They will manufacture ribbons.

Dover, N. J. The erection of an addition is planned by Paul Guenther, manufacturer of full fashioned silk hosiery,

which when completed will enable him to employ 300 additional hands. The new structure will be of brick, four stories high, 200 by 40 feet, with a 40-foot ell, and will adjoin the present buildings.

Millville, N. J. A new bleach and dye works will be started in the old Millville foundry, giving employment to 100 hands.

Newark, N. J. Electricity is to be substituted for steam by the Clark Thread Co. in the operation of its mills in this city and East Newark.

Passaic, N. J. The Gera Mills, manufacturers of fine worsted dress goods, are building an addition to their plant which when completed will give about 1400 looms to these mills.

Paterson, N. J. The Merit Silk Co., located in the Hope Mill, has filed articles of incorporation. The agent in charge is John E. Bolton, and the authorized capital is \$25,000.

The Scandia Silk Manufacturing Company has been incorporated with a capital stock of \$20,000, of which \$4,000 is paid in by the following: William A. Jacobson, agent, 160 Market street, \$2,000; Maurice Price, \$1,000, and Joseph Martin, \$1,000.

Riverside, N. J. It is reported that an addition is to be built to the Riverside Hosiery Mills operated by Christian Dick.

Buffalo, N. Y. The Buffalo Knitting Co. has been incorporated with a capital stock of \$50,000.

Cohoes, N. Y. The Hope Knitting Mill, having received a large order from the Government, are running their plant day and night.

Elmira, N. Y. The Ironwear Hosiery Co. has been started by Edgar C. Crowell, Carmi Lattin and Charles S. Lattin, with a capital stock of \$10,000.

Fulton, N. Y. Upon the completion of the addition to the plant of the American Woolen Company work will be started on an additional floor to the large storehouse and to mill No. 4, both of which are now four stories high.

Johnston, N. Y. The directors of the Johnston Knitting Mill Company are considering the advisability of erecting an addition to the plant to take care of its rapidly increasing trade. The company, it is reported, at present has enough orders on hand to keep the mill running day and night for a year.

Oswego, N. Y. President McChesney, of the Minetto-Meriden Shade Cloth Company, is reported as saying that the

company intends erecting next spring a large cotton mill at Minetto, which will give employment to over 500 people.

The Mohawk Manufacturing Co., H. D. Diment, Agt., manufacturers of wool and merino yarns, will build a three-story brick addition, 125 by 33 feet.

Otto, N. Y. The Otto Woolen Mills has been incorporated with a capital stock of \$35,000, and the incorporators are John L. Pierce and M. L. Pierce, of Otto, and James G. McMahon, of Ellipticville.

Richfield Springs, N. Y. The new Waiontha Knitting Co. will build a three-story addition, 50 by 100 feet, doubling the company's present capacity.

Utica, N. Y. A new knitting company has been organized, known as the "Perfection Underwear Mills." The company will occupy the mill at 92-98 Lafayette street, recently vacated by the Augusta Knitting Mill Company. The new company is capitalized at \$25,000, and is headed by Eugene J. Snyder, George M. Neel, William A. Clark, Arthur E. Snyder and Albert G. Neel.

The Richelieu Knitting Company is constructing an addition, 100 by 50 feet, four stories, to its plant in East Utica.

Dalton, Mass. The Sawyer, Regan Company, manufacturers of woolen and worsted goods, has been incorporated with a capital of \$30,000, by C. H. Regan, Charles F. Sawyer and C. O. Toole.

Fall River, Mass. Work has begun on the erection of the new Flint Mill, located southeast of the old structure. It will be 300 feet long and 106 feet wide, five stories high. The new structure will be connected with the old concern by an ell, five stories high, 52 feet wide and 142 feet long.

The New England Cotton Yarn Company, it is proposed, will install 50,000 ring spindles, 20,000 of which are already in position and running.

Hebronville, Mass. The mill of the Hebron Manufacturing Co., one of the mills owned by B. B. & R. Knight, is running day and night. Mr. Walter J. Howland, the superintendent, reports orders for about 300,000 pounds of yarn on hand.

Hopedale, Mass. The Draper Company are quite busy at the present time, having practically as many orders as they can handle for the balance of the calendar year, and with a good quantity of orders to welcome the new year.

(Continued on page xviii)

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 \$7.50.
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, Trouserlines, 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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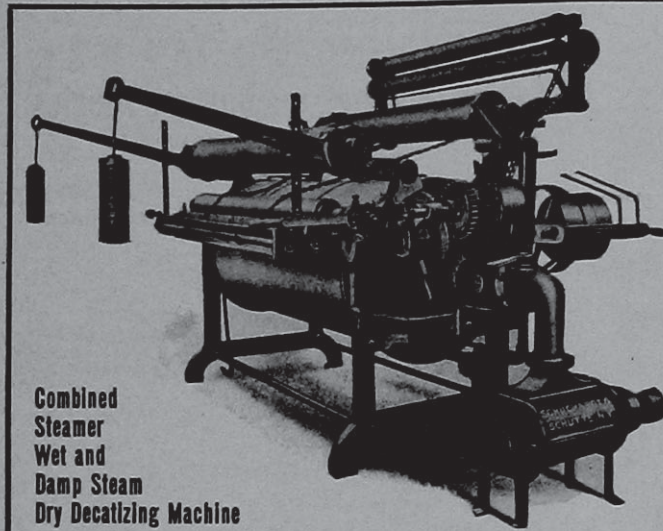
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Lawrence, Mass. At the plant of the Lawrence Dye Works Co., at Lawrence, a lot of new machinery has been installed in the dyeing and finishing departments, increasing the capacity of the works about 20 per cent.

The new five-story mill and one-story addition at the Musketaquid Mills, at Lowell, will be completed within the next few weeks, and by December 1st 200 looms will be in operation at these mills.

Lowell, Mass. It is reported that the Merrimack Mfg. Co. has had plans drawn for a new two-story and basement weave shed, 174 by 154 feet, giving employment to about 300 additional hands. It is understood that it is to be used for the weaving of velveteens.

The Belvidere Woolen Mills contemplate the building of an addition to their plant.

The Appleton Co. are building an addition to their dye house.

Malden, Mass. The Holmes Knitting Co., knit underwear manufacturers, has reincorporated under Maine laws with an authorized capital of \$60,000. This is an increase of \$40,000, and all of the capital will be paid in. Considerable new machinery is now being installed. The officers of the company are: J. B. Jamieson, president; L. D. Marsh, secretary, treasurer and buyer.

Methuen, Mass. Sixteen new Draper looms are being installed in the weaving department of the Methuen Cotton Mills.

New Bedford, Mass. Obadiah Butler, superintendent of the Taber Mill, has resigned his position, and has begun duty as superintendent of the Bristol Mill, succeeding J. L. Burton, who has resigned to become superintendent of the

new Nashawena Mill of William Whitman, in this city.

The New England Cotton Yarn Co. is building a large addition to the No. 3 Mill of the Bennett, to house new combing machinery and 70,000 ring spindles. It is also understood that changes are contemplated in No. 4 Mill, where 40,000 coarse mule spindles will be discarded and 80,000 ring spindles substituted. New combing and roving machinery will also be installed. The changes are for the purpose of manufacturing larger quantities of high grade fine yarns, rather than the coarse carded hosiery yarn.

Rockland, Mass. The Rockland Webbing Co., G. A. Woodward, Mgr., has begun to enlarge its plant on the west side, 70 by 52 feet. The company has a plant in the Lane Building, and the two will be consolidated.



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animal & vegetable
fibres
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New York

Spencer, Mass. The Priscilla Woolen Co. will start night operations at its plant as soon as the necessary help can be secured.

Uxbridge, Mass. The Wancantuck Mills, formerly the plant of C. A. Root & Co., will run during the next few weeks until 9 o'clock at night. The mills are now operated by their new owners, William, Edward and Francis Brady.

Waltham, Mass. Increase in the capital stock has been voted upon by the Boston Manufacturing Co., to be used in the purchase of new equipment. The additional machinery will consist of 12,000 spindles and 400 looms and the carding room will be enlarged. When the new machinery is installed the company will employ 225 more operatives. They now employ 800.

Worcester, Mass. The Lombard Machine Company, manufacturers of woolen and worsted looms, it is reported, are preparing to enlarge the plant by the addition of a brick building, two stories, 50 by 125 feet area. The capitalization of the company is to be increased from \$25,000 to \$100,000. 75 more hands are to be employed.

Ashton, R. I. The two-story addition to the Ashton Mills of the Lonsdale Co. is completed as far as the exterior is concerned.

Hope, R. I. The Hope Company (Hope Mill and Phoenix Mill) has completed an addition to its plant in Hope Village and has started on a new cotton factory at Phoenix. They are installing automatic drawing-in machines.

Manville, R. I. It is reported that a

new cotton mill, to be known as the Independent Cotton Manufacturing Co., will locate here.

Olneyville, R. I. The Continental Worsted Co. has increased its dyehouse capacity. What was known as the picker room has been converted into a dyehouse and a new skein dyeing machine installed.

Pawtucket, R. I. Robert Burgess, the present manager of the Burgess Cotton Mill, of this place, it is reported, is about to sever his connection with the company and in a short time become associated with E. N. Foss in the management of a new cotton mill to be built in East Boston. Mr. Burgess' decision may also influence the contemplated \$1,000,000 new cotton mill for this place, in which George T. Greenhalgh, J. Milton Paine and Col. Lyman B. Goff are mentioned as interested. It is understood that those who were chiefly interested in that matter expected that Mr. Burgess would be associated with them in the new mill.

The Slater Manufacturing Co. will repair and strengthen the old mill building on Main street, which was abandoned about two years ago. The company has installed a large number of looms in the mill, which are now in operation. When the repairs are completed more machinery will be put in.

Providence, R. I. The management of the Elston Worsted Company plans the erection of a large addition to its plant, four stories high, to enable the company to double its present capacity and increase the working force by about 300 hands.

A permit was issued to the Colored

Worsted Mill to erect one new one-story building, 24 feet front by 100 feet deep, and one one-story addition, 38 by 99, on land adjacent to the present mill on Pitman street. The company manufactures 20's to 60's worsted yarn.

Bridgeport, Conn. It is rumored that the Henkel Lace Co., of Germany, will make its home in this city. The company employs abroad about 1,000 hands, and proposes to bring about fifty of the most skilled to this country, starting here with about 500 employees.

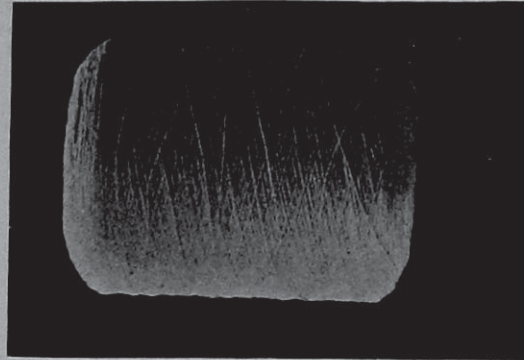
Danbury, Conn. Arthur E. Tweedy has given orders for the construction of a two-story brick factory to provide additional facilities for his business. The new mill will be operated by electricity. The capacity of the present plant will be more than doubled by the addition of the new factory. The specialty of the Tweedy Mills is silk ribbon for the trimming and binding of hats.

Danielson, Conn. The Danielson Worsted Co., which manufactures fine worsteds, and whose plant has been closed for more than a year, has resumed operations, and, it is reported, will run night and day for an indefinite period.

Middletown, Conn. It is rumored that a new concern has practically perfected plans to take over the property of the York Silk Co. and operate it. The plant has been lying idle since the company went into the hands of a receiver.

North Grosvenordale, Conn. The operatives in the cotton mills here, numbering a thousand, are to receive an increase of 10 per cent. in wages, August 15.

WOONSOCKET YARN GASSING MACHINES



THE WIND

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Builders of Cotton and Woolen Machinery **R. I.**

GRAN-CARB-SODA

THE HIGHEST GRADE OF
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117 Hudson Street

New England Butt Co.

Providence, R. I.

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 Co. has awarded a contract for the erection of an office building and dye house to its plant, to cost \$70,000.

Willimantic, Conn. The A. G. Turner Co., has incorporated with a capital of \$50,000. They manufacture silk and cotton goods.

Windsor Locks, Conn. The Medlicott Co., makers of flat underwear, are adding a large number of new machines from Germany.

East Rochester, N. H. The White Mill of the Cocheco Woolen Mfg. Co. has resumed operations.

Nashua, N. H. Six acres of land have been purchased here by the Wonalancet Co., on which will be erected a main building, 200 by 100 feet; storehouse, 300 by 100 feet; heating plant and washhouse. It expects to complete these buildings and to be in operation by November 1. The new plant will cost in the vicinity of \$150,000. Lester F. Thurber, of Nashua, is the president of the concern, and Harry H. Blunt, of Nashua, is treasurer and general manager.

Tilton, N. H. The Elm Mills Woolen Company has made large additions to the plant, installing 20 looms and one set of cards; a new basement under the mill, 100 by 55 feet, has also been built, and will be used for a finishing room. Its store house was recently struck by lightning, causing a damage of \$10,000.

Sanford, Me. The Goodall Worsted Co. manufactured 1,000,000 yards of cloth last month and has sold up its product to next January, all of its samples having been withdrawn from the market.

Bessemer City, N. C. The Mascot Mills have resumed operations under the superintendency of Mr. John F. Scott.

The Akron Manufacturing Company has been incorporated with a capital of \$150,000. The incorporators are J. H. Mayes, Charlotte; F. M. Miller, Jr., Richmond, and T. C. Guthrie, Charlotte. This company will take over the Whetstone Mill.

Charlotte, N. C. The Chadwick-Hoskins Company will add 7,000 spindles to its No. 3 mill.

Cliffside, N. C. The Cliffside Mill has completed the installation of 10,000 additional spindles and accompanying machinery, which increases its equipment to 30,240 spindles and 1,010 looms. Further additions of machinery arranged for are 70 looms, to be delivered at once, and 10,000 spindles, with necessary cards and looms, to be delivered by November.

Forest City, N. C. The Dixie Knitting Mill Co. has been incorporated by C. A. Wilkie, W. V. Hicks, G. P. Reid and W. C. Bostic.

Gastonia, N. C. The Flint Mills are adding 2,000 spindles and carding machines to correspond.

Greensboro, N. C. The Pomona Mills have organized with J. E. Latham, president; W. C. Boren, vice-president; W. M. Hunt, J. C. Watkins, W. C. Boren, J. E. Latham and E. P. Hardin, directors, for the purpose of acquiring the Pomona Cotton Manufacturing Company mill, which Mr. Wharten had bid in at \$285,000. The sale has now been confirmed by court, and the new company organizes with a capital stock of

\$200,000 and a bond issue of \$150,000. About 19,000 ring spindles and 330 narrow looms are in position.

Hickory, N. C. The Ivey Cotton Mill Company will arrange for the erection of buildings and the installation of machinery to double its present plant.

Landis, N. C. The foundation for the new cotton mill is laid and the building will be pushed to speedy completion.

Laurinburg, N. C. The Waverly Cotton Mill Co. will have its machinery in operation by September 1. This company will operate 20,000 spindles, etc., on the production of hosiery yarns—16s to 30s. J. P. McRae is president, and the enterprise is under the same management as the Scotland Cotton Mills and the Dickson Cotton Mills here.

Rockingham, N. C. The Entwistle Mfg. Co. has been incorporated with an authorized capital of \$500,000. They will begin work with \$41,000 already paid in. W. B. Cole is the general manager.

Zirconia, N. C. The Green River Mfg. Co., E. N. Poore, Supt., will add 2,280 spindles and four cards to their plant. They spin 70s and 80s from combed peeler.

Abbeville, S. C. This place is to have a new cotton mill. Mr. J. Allen Smith, one of the leading business men, who has made a success as a banker, oil mill man and in other lines, will be at the head of the new enterprise, to which the people of Abbeville have already subscribed \$90,000.

Anderson, S. C. Additional machinery has been recently installed in the carding and spinning room of the Toxoway Mill.

Calhoun Falls, S. C. The Calhoun Mills will increase capital by issuing \$200,000 of preferred capital stock, for the purpose of providing funds for the erection of additions and the installation of 10,000 spindles and 250 looms. The company contemplates a further addition of 13,000 spindles and 350 looms. It now operates 16,384 spindles and 400 looms, producing sheeting.

Central, S. C. The Issaqueena Mill will build an addition, and install about 12,000 spindles, 300 looms, carding machinery, etc.

Greenwood, S. C. The Grendel Mills have increased their capital stock half a million dollars, to provide funds to build a new cotton mill here.

Greer, S. C. The new mill building will be completed by the 1st of September, when the work of installing the machinery will be taken up. The mill will be in operation by January 1st. Approximately \$100,000 will be expended in construction, the balance going for machinery and fixtures.

Inman, S. C. The Inman Mill has completed the erection of its addition. 13,600 spindles and 240 looms for manufacturing sheeting are being installed.

Pascolet, S. C. The capital stock of Pascolet Mills has been increased from two millions to three million dollars.

Buena Vista, Va. Emanuel Gerli, 52 Greene street, New York, who purchased the Buena Vista Woolen Mills, has removed the woolen equipment, installing in its place silk machinery. Wm. Getman is the superintendent, at Buena Vista.

La Grange, Ga. Contracts have been awarded for Humidifying systems for the Unity Cotton Mills Nos. 1 and 2; the Elm City Cotton Mills, of this place; the Milstead Manufacturing Co., of Conyers, and the Manchester Cotton Mills, of Manchester, Ga. These cotton mills compose the organization headed by Fuller E. Callaway, C. W. Truett and associates, of La Grange, and J. H. Lane & Co., of New York.

Denison, Texas. The Denison Cotton Mill Co. will double its capital stock to provide funds for adding to the mill's manufacturing facilities.

Meridian, Miss. The Priscilla Mills of this city will soon be ready for operating its 100 knitting machines, for a daily capacity of 600 dozen pairs of hose. The company is a branch of the Alden Knitting Mills of New Orleans. O. A. Moers of the New Orleans plant will locate in Meridian as manager of the Priscilla Mills.

Trenton, Tenn. The Trenton Cotton Mills are putting in two 64 spindle 12 x 6 slubbers; four 102 spindle 10 x 5 intermediates; five 136 spindle 8 x 3 1/4 fly frames; one Denn warper, two ball warp machines, two 54 x 90 inch reels. Every piece of the old equipment has been replaced by new models of the latest improved types.

Saginaw, Mich. The Clare Knitting Mills, of Clare, will be removed to this place, upon the completion of a two-story building on Holland avenue. The cost of constructing the new mill and the removal of the Clare plant is estimated at \$40,000. It is believed that the business will be doubled when the new mill is in operation, which will be about the first of the year.

Marinette, Wis. The Marinette Knitting Mills have increased their force of operatives to 110. Additional machines have been ordered.

LaCrosse, Wis. The North Side Yarn Mill, established two years ago by E. A. Stickler, will add more machines. Mr. Stickler also plans to install looms for the manufacture of woolen rugs.

Cleveland, Ohio. The Cleveland Woolen Mills Company is to erect a new plant, to cost about \$80,000, on Broadway.

Dresden, O. The Muskingum Valley Manufacturing Co.'s plant and personal property of the concern were sold to representatives of the Cleveland Woolen Mills.

Fort Wayne, Ind. John A. Thieme, who has been sales manager for the Wayne Knitting Mills, has been advanced to the position of assistant general manager of the company, a position created to meet the demands of the growing business of the concern. Another change to take place in the near future at the knitting mills will be the part Mr. G. J. Thieme will take when the silk knitting mills department is ready to commence operations.

Fort Wayne, Ind. Work on the new mill of the Old Fort Knitting Company has been commenced. The new structure will be three stories high, with basement, and will cost about \$27,000, exclusive of equipment. The new plant will be completed and in operation by January 1, when a force of 125 hands will be employed. The company starts with a capital of \$200,000.

EXPLANATIONS FOR THE CHART OF WEAVES ON "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, Corkscrews, 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, Huckes, 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? 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 $\frac{1}{2}$ 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.—Twills *q*, 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 63° twills, marked also respectively *w* and *w'*, the latter two weaves have again for their foundation respectively the common twills marked *t* and *z*.

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

Example.—Backed by filling *e* 8, means the common $\frac{2}{2}$ 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 $\frac{2}{2}$ 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.

"TEXTILE DESIGNING SIMPLIFIED."

Keep this chart on hand for reference. Only 144 weaves are given, yet they will guide you to make millions of new weaves.

