The balance is now lowered on to its supports and the object to be weighed is put on the left hand scale pan. The weights are put on the right hand scale pan. Place on the right scale pan the weight that will counter-balance the object in the left scale pan. If it is too light, it is replaced by the next larger weight and so on until the weight that is heavier than the object is reached. When this is reached, the next smaller weight is put on the pan. Use the weights in regular order, starting with the larger ones and ending with the small ones. After the weights almost balance the object, the rider is moved along the beam until the resting point of balance (as indicated by the pointer on the scale) is the same as when there was nothing on the scale pans. The balance is now lowered to its supports. Remember that the balance should never be off of its supports, except during the weighing. Nothing should be placed on or removed from the balance pan without arresting the balance, *i. e.*, lowering the balance to its supports.

Never weigh any hot substance, in a hot crucible, allow it to cool in the desiccator before weighing. A desiccator is a necessary apparatus for most chemical work, therefore it should be added to the list of apparatuses required.

(To be continued.)

Handling Cotton Warps.

By James Barker.

That goods should be dyed with the most suitable dyestuffs possessing the requisite fastness and cleanliness, goes without saying; and one of the difficulties of the dyer's art consists in selecting the right product and applying it in the most effective and, withal, most economical manner.

It is, however, too often forgotten that others must deal with the warp after it has left the dyer's hands. This is a very important consideration, and deserves the most careful attention of dyehouse management. It ought to be the ideal of the dyer and all his subordinates to pass the warp on to the dresser or beamer in the condition of the grey or undyed state.

What are the chief features of the grey warp? In the main they are negative in character. There are no broken ends, the threads composing the warp are not crossed, do not stick together, and are soft to the touch. These are most excellent qualities which should be treasured, preserved, and even enhanced whenever possible, while passing through the dyeing process.

To achieve this result the warp must be treated and handled in a business-like fashion. There must be no experiments tried. No uncertainty should exist in the dyer's mind as to which color he will use, and how he will employ it. If the goods are given too many passages through the machines they become irretrievably injured. Two or three passages are, of course, indispensable if a thoroughly penetrated and level dyeing is to be obtained, but it should be seen to that no useless or avoidable working is given to the warps.

In certain circumstances satisfactory dyeings may be produced by a single passage; and as often as this can be done it is to be highly commended for economic as well as other reasons. It may be laid down as a pretty safe statement that the vast majority of dyeings to good matches may be effected, even with the so-called fast colors, in four passages. If the rollers are all in good condition, and the wrappings what they ought to be, the warp will still be like a grey warp from the dresser's standpoint.

If threads have to be taken off for matching purposes they should be taken from the extremity of the warp and never from the middle. A still better course is to attach a few threads from hank cotton of the same particulars before commencing the dyeing operation, using these as required. Or a small piece of the warp may be dried on the outside of a pot containing hot water.

In this manner not a single thread of the warp itself will be lost. If the counts are single then a nice, free size is indispensable. During this process no ends need be broken. If the counts are double or threefold, a kindly, silky feel must be imparted to the goods. This may generally be effected by soaping or adding turkey-red oil to the final wash. When tannin matters, including cutch (and chrome) are used in more than usual quantities a mere soaping is not enough. It is better to dry the warps once, and wet out again in a clear, warm soap bath, washing lightly in soft water. (Dyer and Calico Printer.)

Removing Fog from Dyehouses.

Messrs. Turin and Lassaux, reporting, under the direction of the Association of French Dyeing Industries, on investigations of French dyehouses, state that, among other means for increasing the temperature in the dyehouses may be mentioned the circulation of air from other rooms, where the temperature reaches 100 to 120° F. They examined several dyehouses where this method was employed, among them the Maswell works, at Tourcoing. Here the hot air was carried from an adjoining workroom by means of ventilating fans to the dyehouse. In the Schæffer mill, at Mulhouse, the hot air was conveyed from a singeing room through a pipe about 26ft. long to the dyehouse. In one dyehouse, at Amiens, a large amount of hot air was obtained from the velvet drying room. Very good results were obtained by forcing air from this room into the dyehouse. This method cannot always be employed, owing to the large amount of moisture with which the air from some drying rooms is laden; such, for example, as those in which wool is dried. A dyer at Roubaix cited his experience in confirmation of this statement. In several dyehouses the air needed was heated by Belgian ovens, and in others good results were obtained by the use of radiators heated by exhaust steam. These were placed from 6ft. to 7ft. above the floor, where the thickest fog accumulated. Provision of a sufficient number of radiators is required to give a horizontal layer of hot air, so as to reduce the fog and cause it to rise.

Increasing the Fastness of Indigo Blues.

Shades of indigo blues on cotton yarns that are very fast to rubbing and to washing are often called for. In many cases these demands may be met by

giving the yarn a course of light soaping and washing between the different dips, for the purpose of removing all mechanically-fixed coloring matter. Drying followed by rewetting out half-way through the dyeing operations may also serve in a way. Fastness both to washing and to bleaching may be decidedly increased by treating the dyed yarn, after washing, with, successively, turkey-red oil and aluminium acetate. This course of treatment is carried out by working the dyed yarn in a bath of 10 parts of turkey-red oil to 90 parts of water, and, after squeezing, drying for about 12 hours at a temperature of 120 to 160° F. It is then impregnated in acetate of alumina, 9 deg. Tw., and dried.

The S. & S. Pneumatic Extractor.

The same is one of the most important adjuncts to finishing machinery introduced into this country by Schuchardt and Schutte, the prominent importers of foreign Textile Machinery.

It is built by the well known firm of H. Behnish, one of the largest German concerns engaged in the construction of Finishing Machinery; Mr. Behnish personally, being one of the most widely known authorities on the subject of finishing, abroad.

As will be readily understood, the purpose of the new Pneumatic Extractor is to do away with the disadvantages to fabrics, characteristic of drum-extractors, *i. e.,* prevent the formation of creases, nicks, tears, etc., to the cloth under treatment, delivering with the new extractor the fabric in a nice, lofty condition, in its full open width, as compared to the cramped down string of cloth taken from the, until now commonly used drum-hydro extractor.

The new S. & S. Pneumatic Extractor thoroughly drains the water which the fabric contains, by means of suction, the cloth for this purpose passing over a trough having an adjustable opening or slot on its top, and over which the cloth travels, under tension, so as to fully cover the slot, in order that suction is produced.

The fabric is fed to the machine, either from open folds or wound on a wooden roller, it then passes under a guide rod and over an expander, then over and under suitably situated feed and guide rollers, over the slot of the trough previously referred to, then over guide and under draft roll to the delivery end of the machine, and when in turn the fabric is either wound on a wooden beam driven by friction drive, folded on a table, or the machine may be connected to the drier.

In connection with face finished fabrics, the cloth is made to run with its back over the slot of the trough, a feature which will lay the nap on the face of the fabric smooth. This slot of the trough can be lengthened or shortened side ways, in order to accommodate different widths of the cloth.

The parts of the machine with which the cloth comes in contact with are made impervious to acids, this permitting the extractor to be used with different stages of textile manufacturing, *i. e.,* whether said cloth in turn has to be dried or is only extracted for another reason previously to subjecting it to another process. The expander, and with which the cloth when entering the machine comes in contact with, stretches and pulls the fabric thoroughly previously to bringing it in contact with the suction device, thus preventing all chances of kinks, creases, tears or any other damage whatever to the cloth, thoroughly extracting the fabric in the best possible condition, and far superior to the common drum-hydro-extractor. The machine is provided with a speed regulator, in order that the fabric can be run through the machine at the required speed, in turn delivering it from the machine in proper condition, *i. e.,* the amount of extracting can be easily regulated to suit the demands.

In connection with cotton flannels, velvets, plushes and similar velvet or raised pile fabrics, the cloth is then run through the machine with its face over the slot, a feature which assists in raising the pile, *i. e.,* tends to keep it erect for final drying.

The machine is built in two sizes, one known as the #12-A machine, taking cloth 63″ wide, requiring a floor space of 5 by 9 ft., and the other, the #12-B machine, taking cloth about 78½″ wide, requiring a floor space of 5 by 10½ ft. The machine is brought into the market by Schuchardt and Schutte, 136 Liberty Street, New York City.

DICTIONARY OF TECHNICAL TERMS RELATING TO THE TEXTILE INDUSTRY.

EASING MOTIONS:—The term applied to certain motions which counteract the severity of the upward action of the counter-faller wire during backing-off of the mule.

EAST INDIA COTTON:—A short stapled cotton, varieties of it being known by the name of *Surat, Madras, Bengal,* etc.

ECAILLE WORK:—A specimen of fancy work in which spangles, cut from quills, are sewed on the fabric in regular patterns.

ECRU:—Unbleached, as applied to textile fabrics; having the color of hemp in its natural state. Cross between a yellow and a fawn.

ECRU LACE:—A variety of lace, produced with two kinds of braid, one plain and the other crinkled, which are worked into large prominent, usually geometrical patterns, by means of bars or braids of thread.

ECRU SILK:—The fibre deprived of its gum to the extent of from two to five per cent.; by washing in weak soap suds and afterwards bleaching.

EDGING:—A narrow lace or embroidery especially made for trimming.

EGALISOL:—Borosulphate of soda, 3% of it being used with 4% of bichromate, to even up the color.

EGYPTIAN COTTON:—Since cotton has been grown in Egypt about a century ago, many varieties have disappeared. Such were the *Gallini,* the *Bamieh* and the white *Zifta* Cotton. The principal varieties now grown in lower Egypt are the following, *Mit Afifi, Abbassi, Yannovitz, Nubarri, Sultani, Achmouni,* the last being the principal variety grown in upper Egypt and the quality of its fibre is far superior to all other varieties.

EIDER-DOWN:—The down or short feathers of the eider-duck, valued on account of its lightness and warmth as a stuffing for coverlets, pillows, etc.

EIDER-DOWN BLANKETS:—Blankets which have a fine soft nap on both sides, and are tufted and bound.

EIDERDOWN CLOTH:—A heavy napped woolen fabric used in the manufacture of ladies' and children's outer garments,

caps, cloaks, and robes. Its special qualities are lightness combined with warmth. The original eiderdown cloth was a knitted fabric, but now also includes woven fabrics.

EILETON:—A linen or silk cloth upon which the eucharistic elements are laid to be consecrated; corresponding in this way to the *corporal* cloth of the Roman Catholic Church.

ELASTIC:—A narrow webbing, made elastic by introducing india-rubber warp threads in the structure during weaving, used as bands, suspenders, garters, etc.

ELECTRIC DYEING:—Dyeing in which electricity is used to reduce or oxidize the salts.

ELL:—A measure of length, originally taken from the arm; a cloth measure equal to 45 inches in England and 37 inches in Scotland; now rarely met with.

ELONGATED TWILLS:—Steep twills of more than a 45° grading.

ELSIE WORK:—A variety of embroidery worked upon cream colored canvas, also with the corners or borders of tinted linen. A design requiring to be filled in with fancy stitches is then traced upon the centre and filled in thickly with different stitches.

EMBOSSED or RAISED VELVET:—Velvet showing a pattern in relief.

EMBOSSING MACHINE:—A machine where by a system of engraved rolls which are heated, designs are impressed upon velvets and other fabrics.

EMBROIDERY:—Working with the needle, raised and ornamental designs in threads of wool, worsted, cotton, silk, gold, silver, etc., upon any woven or knitted fabric.

EMERALDINE:—A dark green dye, produced by treating aniline black with acids, previous to the black being completely developed.

EMERY CLOTH:—A fabric coated with hot glue and sprinkled with powdered emery, used for polishing metal surfaces.

ENAMELLED CLOTH:—An imitation of leather made with a glazed finish, used for upholstery purposes.

END:—The technical name for a thread, also one strand of sliver or roving.

ENDAZE:—The Turkish ell, equal to 26 inches.

ENDOCHROME:—The colored substance within animal or vegetable cells.

ENGI:—The skirt worn by Burmese women, usually of mixed silk and cotton colored material.

ENGLISH FOOT:—A stocking foot, having two seams, one on each side of the sole.

ENTERING DRAFT:—The English term for what we call *drawing-in draft.*

The arrangement for drawing the warp threads into the heddle eyes of the harness.

ENTWINING TWILLS:—A subdivision of the regular twill.

EPENGLINE:—A union serge, having a silk warp and a Merino wool filling.

EPHOD:—The linen vestment worn by the Jewish high priest over the tunic and outer garment.

EPIDERMAL LAYER:—The outer layer or skin of a fibre.

EPSOM SALTS:—Also known as *Bitter Salts,* used in certain finishes, and usually contains small quantities of impurities, magnesium chloride, potash, and soda salts, and insoluble matter. The weighting properties of Epsom Salts depend upon its being easily soluble in water, in order that it may easily penetrate the fibres of the cloth, when immersed in the solution. On drying, it crystallizes, causing the fibre to expand, and therefore imparting to it a substantial feel. It can be used for every description of fabric, whites, self-colored cloths, prints, etc., being perfectly neutral and having no action on the cotton nor on any colors. With goods finished with Epsom Salts, there is no liability to mildew.

EQUATIONAL BOX:—An English term for the differential gearing in fly frames, for regulating the twist in the roving, usually enclosed in a box.

EQUESTRIENNE TIGHTS:—A tight fitting knitted drawer for women's use, made with or without feet.

ERI SILK:—Also known as *Era* Silk. A specialty of wild silk found in Assam, India, the product of the Eri silk worm feeding on the castor plant leaves. It cannot be reeled, hence is manufactured into yarns by the process of waste silk spinning. It is uneven and coarse, but fabrics produced from it, though rough, are exceedingly durable, for which reason it is prized by the poorer classes in India.

EXMORE SHEEP:—An English breed, found in Cornwall and Devon.

EXTRACTING:—The removal of burs, shives and other foreign substances from the wool; the removal of vegetable fibres or threads from rags by the process of carbonizing.

EXTRA FINE:—A two-ply ingrain carpet constructed with 832 threads in warp, exclusive of selvedge.

EXTRA SUPER:—A two-ply ingrain carpet, constructed with 1,072 threads in warp, exclusive of selvedge.

(*To be continued.*)

THE BLEACHING, DYEING AND FINISHING OF KNIT GOODS.

(*Continued from page 90.*)

This gives us now a chance to refer to an improved device for the trimming department of underwear goods, *i. e.*, a Neck Sewing and Cutting Attachment.

This attachment to sewing machines is designed for the automatic cutting and sewing of necks of knit underwear in one operation, thereby effecting a considerable saving of labor, besides increasing the production. There is also less confusion in the new method of cutting and sewing the necks owing to the fact that two separate operations are dispensed with.

The machine is quite simple in its construction and operation, one operator being able to cut and sew from 125 to 150 doz. necks per day of 10 hours. The necks of the garments are marked in the usual way, some mills using for this work a power stamping machine, while others prefer the hand marking templet to mark the size and shape of the neck on the goods. Thereupon the goods are taken to the sewing machine, which completes the neck in one operation, thus saving the cost of the sewing by the single needle machine, and the cost of the cutting of the neck. The new method also gives a neater finish, owing to the fact, that it is impossible for an operator to fail to cover the raw edge when the cutting and sewing is done in one operation. The attachment can be applied to any twin needle flat bed machine.

The adjustment of the attachment to suit the cloth to be operated upon is best described by means of quoting letters of reference in the accompanying eight illustrations, and of which Fig. 1 is a perspective view of the entire attachment, less the throat plate and presser foot. Fig. 2 is a side-view of the upper and lower knives with fabric guard. Fig. 3 is a plan view of the knives and their relation to the feed dog. Fig. 4 is a plan view of the throat plate, showing the fabric diverter, for diverting the loose fabric from the path of the needle. Fig. 5 is a plan

view of the knives and their lever. Fig. 6 is an end view of the fabric guard and its bracket, which is fastened to the front of the cloth plate. Fig. 7 shows the completed shirt minus sleeves (more particularly given to show the completed neck), and Fig. 8 is a detail of the neck portion of this shirt (enlarged, compared to Fig. 7) showing the circular flap *A* as cut out (see *B*) of the material *C* sewed onto (*i. e.* reënforcing) the back portion of the shirt. Letters of reference *a* and *b* in Figs. 7 and 8 indicate corresponding portions in the shirt, *c—d* indicates the line on which the top of the shirt is sewed, the front portion of the shirt being shown turned back.

The top or movable knife *A* is shown in Fig. 2 at its highest position, prior to cutting the fabric. *B* represents the stationary or bottom knife, which should be set level with the top of the throat plate shown

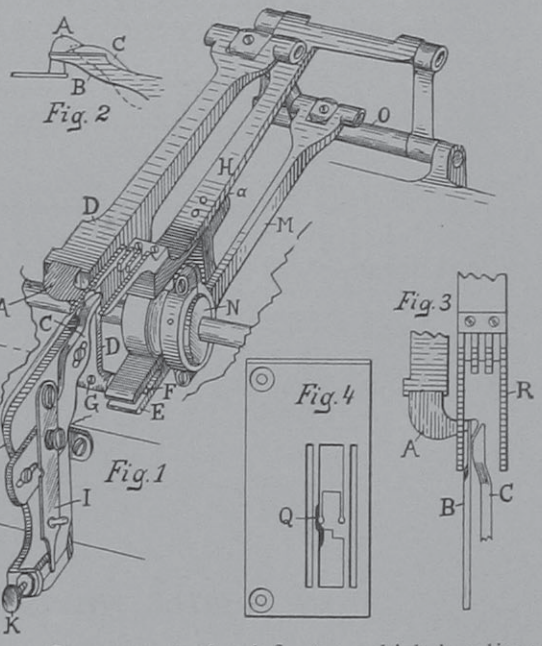


Fig. 1

Fig. 2

Fig. 4

Fig. 3

in Fig. 4. *C* represents the deflector, which is adjustable, as shown in Fig. 1, in combination with parts *I* and *K*, and of which *I* represents a lever, which through the deflector *C* can be adjusted to any one of three positions, it being understood that this member is employed to stop the cutting operation, and is also used as a gauge for the cutting of light Balbriggan fabrics. The deflector *C* is shown in all the illustrations as being set to its central position, suitable for light or Balbriggan fabrics, the forward throw of lever *I*, Figs. 1 and 6, raising the deflector *C* to such a position that all the fabric passes over the top of the knife *A*, thereby avoiding any cutting of the fabric. This is necessary, since an operator is sometimes called upon to re-sew a garment that has been previously cut around the neck by the machine, or where the machine has been running with a broken sewing thread.

When the lever *I* is put back to the extreme outward position, by raising the lever *I* clear from the adjusting screw *K* in Figs. 1 and 6, the deflector *C* is at its lowest position, suitable for heavy fleece fabrics.

The adjusting screw *K* in Figs. 1 and 6 is used for setting the deflector *C* to a suitable position for light or thin fabrics, thus enabling the operator to finish any weight of garments at will; the best method

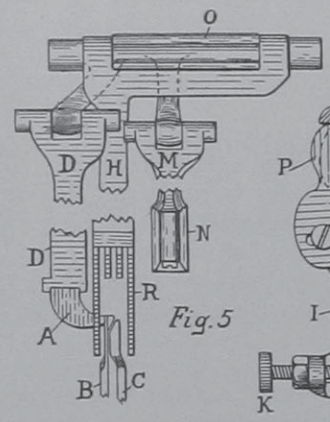


Fig. 5

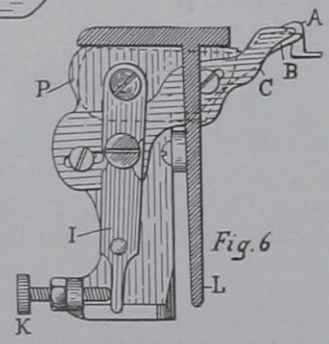


Fig. 6

of obtaining this adjustment being by sewing a small piece of waste fabric before commencing on a garment. If the deflector *C* is too high, the knife will fail to cut; if too low, both layers of fabric will be cut.

The knife *A* is pointed, since it is necessary for it to pierce the fabric when a garment is first placed in the machine, the point of the knife *A* being somewhat lower than its back. When cutting one layer of fabric, the other will be entirely clear of the cutting point.

D in Fig. 1 represents the knife lever, upon which the movable knife *A* is mounted, this lever having both a vertical and a horizontal movement, giving the top knife *A* a regular shearing motion. The vertical motion is obtained through the slotted bracket *E*, Fig. 1, mounted on a feed dog lever *H* at *a*, Fig. 1; the horizontal movement being obtained by the aid of the eccentric *N* and levers *M* and *O*, Fig. 1. The timing of the eccentric *N* should be opposite to that of the regular feed dog eccentric. Lever *D*, Fig. 1, is connected to a bracket *E* by means of an eccentric stud *F*, held securely by a small screw *G*.

The bottom knife *B* is mounted to the deflector bracket *P*, as shown in Figs. 1 and 6, which in turn

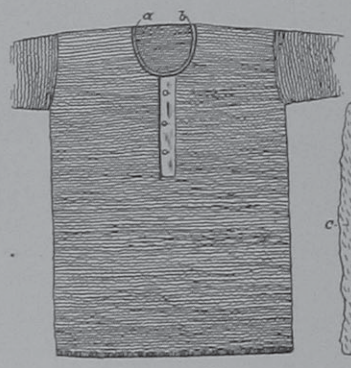


Fig. 7

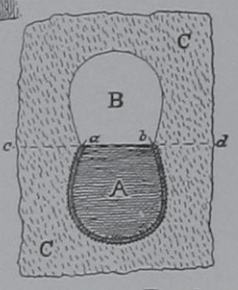


Fig. 8

is securely mounted on the cloth plate of the machine, as shown at *L* in Fig. 6, in section.

Fig. 4 represents the throat plate of the machine, upon which is mounted a diverter *Q* for diverting one edge of the fabric out of the path of the needles, so

that the backing of the neck of the garment only is sewed.

Fig. 3 shows the relative positions of the top and bottom knives *A* and *B*, with their cutting edges together, also the position of the deflector *C*, which should be as close to the knife *A* as possible without actual contact. *R* represents the feed dog for feeding the fabric.

Review of general adjustment: See that all screws in the machine are secure, adjust the sewing in the usual way as the attachment requires no special adjustment in relation to the sewing parts. Set the knife *A* securely to lever *D*, set deflector *C* to its lowest position, try the cutting by using a heavy piece of fabric, two ply, in the same manner as a garment is sewed. If the knife is too high, both layers of fabric will be cut, if too low, neither layer will be cut; correct adjustments can be quickly made by turning the eccentric stud *F* in lever *D* (see Fig. 1). See that the eccentric holding screw *G* in lever *D* is secured after each adjustment. After these adjustments are made, set the deflector *C* to its central position, as shown in Figs. 1 and 6 by lever *I*. Then try the lighter fabric you wish to operate upon, adjust the screw *K* (Figs. 1 and 6) until one only of the two layers of fabric is cleanly cut, whereupon the machine is ready for use.

The Value of Conditioning Yarns.

Owing to the importance of the subject of Conditioning, the U. S. Silk Conditioning Company, the official organ for the Silk Association of America, has prepared and issued a book, in pamphlet form, of 67 pages, which demonstrates that textile manufacturing is not only a business but a Science and that the Conditioning of Yarns is as necessary to the business as to the Science.

Although, as readily understood, the pamphlet deals more particularly with Silk, its contents will also prove of the greatest of interest to Worsted and Fine Count Cotton Manufacturers, convincing them *to buy* their *yarns on a conditioned weight basis* and thus frequently save money, paid otherwise for moisture, *i. e.,* water, which the yarn in question is overloaded with. Disputes as to elasticity, strength, counts and twist in yarns are also points finally settled by this conditioning house.

In the interest of such Mills, their Managers and Overseers, Purchasing Agents, as well as the Textile Student, the U. S. Silk Conditioning Company has printed for sale, an extra supply of this pamphlet, copies of which can be obtained by addressing Mr. Franklin Allen, Sect., Silk Exchange Bldg., Broadway cor. Broome, New York City.

Interesting Facts Regarding the Northrop Loom.

Some recent loom orders received by the Draper Company during the business depression of the past year, speak well for these looms. Over 12,000 Northrop Looms have during this time replaced common looms in mills all over the country, covering a great range of fabrics, and representing some of the strongest and most conservative cotton manufacturers in this country. Among these are:

RHODE ISLAND:
Lonsdale Company
Hope Company
Manville Company
B. B. & R. Knight
Bernon Mills

MAINE:
York Manufacturing Co.
Androscoggin Mills
Pepperell Manufacturing Co.
Continental Mills
Lockwood Company

MASSACHUSETTS:
Cordis Mills
Thorndike Company
Naumkeag Steam Cotton Co.
Everett Mills
Pacific Mills
Atlantic Cotton Mills
Richard Borden Mfg. Co.
Massachusetts Cotton Mills
Merrimack Manufacturing Co.
Boott Mills

CONNECTICUT:
Quinebaug Company
Aldrich Manufacturing Co.

NEW HAMPSHIRE:
Cocheco Manufacturing Co.

SOUTH CAROLINA:
Union-Buffalo Mills Co.
Pelzer Manufacturing Co.
Laurens Cotton Mills

NORTH CAROLINA:
Chadwick-Hoskins Mills
Patterson Manufacturing Co.
Cannon Manufacturing Co.
Rosemary Manufacturig Co.

GEORGIA:
Trion Manufacturing Co.

MISSISSIPPI:
Stonewall Cotton Mills

ALABAMA:
Merrimack Manufacturing Co.
Avondale Mills

VIRGINIA:
Riverside Cotton Mills
Dan River Cotton Mills

NEW JERSEY:
Millville Manufacturing Co.
Mays Landing Water Power Co.
Johnson & Johnson

NEW YORK:
Utica Steam and Mohawk Valley Cotton Mills

MISSOURI:
Home Cotton Mills

INDIANA:
Brower and Love Bros.

The above list is not complete, and includes no orders for new mills, and with but few exceptions are from parties already operating large numbers of Northrop Looms.

Considering the output of the various mills quoted, shows clearly that the Northrop Loom is *a success on* practically *all weaves* for cotton fabrics that can be woven by one shuttle, without limitation as to width, character of filling, or number of harnesses used.

MILL NEWS

Philadelphia, Pa. A company has been formed here under the name of the Colonial Manufacturing Company to manufacture shirtings. The concern will commence with about forty looms, having leased a floor in the building of the Pine Tree Silk Mills, and expects to be in operation by January 1, 1909.

John and James Dobson opened several carpet mills because of the prosperity which has set in since Taft's election.

The American Knitting Mills, Germantown, operated by David Block & Co., are running their plant until 9 o'clock at night on account of the demand for their product.

Chester, Pa. The Arasapha Manufacturing Company is running on full time, and from reports nearly all the others are doing the same.

George C. Hetzel & Co.'s plant is operating day in and day out, with excellent prospects.

(*Continued on page xii*)

LIST OF ADVERTISERS

BUYERS' INDEX

Apparatus for the Dye Trade.
Berge, J. & H.

Bleachers.
Firth & Foster Co.

Bleaching Kiers.
Philadelphia Drying Machinery Co.

Bleaching Materials.
Roessler & Hasslacher Chemical Co.

Bobbins.
Draper Co.

Braiding Machinery.
New England Butt Co.

Carbonizing Machinery.
Hunter, James, Machine Co.
Philadelphia Drying Machinery Co.

Card Stampers.
Lentz, F. G. & Co.

Carpet Machinery.
Altemus, Jacob K.
Philadelphia Drying Machinery Co.

Chemicals.
Berge, J. & H.
Holbrook Mfg. Co., The.
Klipstein, A. & Co.
Roessler & Hasslacher Chemical Co.

Chroming Machinery.
Philadelphia Drying Machinery Co.

Cost and Accounting Systems.
Wright, R. A.

Cotton.
Vinal, Samuel S. & Co.

Cotton Combers.
Mason Machine Works.
Whitin Machine Works.

Cotton Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Draper Co.
Globe Mach. & Fdy. Co., Inc.
Halton's, Thomas, Sons.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Philadelphia Drying Machinery Co.
Schaellibaum, Rob., Co., The.
Schuchardt & Schütte.
Whitin Machine Works.
Woonsocket Machine & Press Co.
Lever, Oswald Co., Inc.

Cotton Yarns.
Chapin, George W.
Littauer, Ludwig.

Designers.
Lentz, F. G. & Co.

Design Paper.
Textile Publishing Co.

Drawing Frames.
Mason Machine Works.
Whitin Machine Works.

Drying Machinery.
Hunter, James, Machine Co.
Philadelphia Drying Machinery Co.

Dust Collectors.
Philadelphia Drying Machinery Co.

Dyers & Finishers.
Firth & Foster Co.

Dyeing, Drying, Bleaching and Finishing Machinery.
Hunter, James, Machine Co.
Philadelphia Drying Machinery Co.
Schuchardt & Schütte.
Woonsocket Machine & Press Co.

Dyestuffs.
Farbenfabriken of Elberfeld Co.
Klipstein, A. & Co.

Dynamos & Motors.
Sipp Electric & Machine Co.

Electric Fans.
Philadelphia Drying Machinery Co.

Engravers.
Commercial Photo-Engraving Co.

Grids for Lappers.
Schaellibaum, Rob., Co., The.

Harness Builders.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.
Lentz, F. G & Co.

Harness Twine.
Littauer, Ludwig.

Heating and Ventilating Apparatus.
Philadelphia Drying Machinery Co.

Heddles.
Steel Heddle Mfg. Co.
Whitaker Reed Co.

Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

Jacquard Card Stamping, Lacing and Repeating Machinery.
Royle, John & Sons.

Knitting Machinery.
Brinton, H., Co.
Grosser Knitting Machine Co.

BUYERS' INDEX—Continued

Looms.
Crompton & Knowles Loom Works.
Draper Co.
Kilburn, Lincoln & Co.
Mason Machine Works.
Whitin Machine Works.

Measuring Devices.
Draper Co.
Knapp, Chas. H.
Sipp Electric & Machine Co.

Metallic Rolls.
Metallic Drawing Roll Co., The.

Mohair.
Littauer, Ludwig.
Queensbury Mills.

Mules.
Mason Machine Works.

Patent Attorneys.
Crosby & Gregory.
Howson & Howson.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Pneumatic Conveyors.
Philadelphia Drying Machinery Co.

Power Transmitting Machinery.
Philadelphia Drying Machinery Co.

Presses.
Philadelphia Drying Machinery Co.
Woonsocket Machine & Press Co.

Printing Drums.
Crompton & Knowles Loom Works.

Pumps.
Philadelphia Drying Machinery Co.

Quillers.
Knapp, Chas. H.
Lever, Oswald Co., Inc.
Sipp Electric & Machine Co.
Whitin Machine Works.

Railway Heads.
Mason Machine Works.
Whitin Machine Works.

Reeds.
Whitaker Reed Co.

Reels.
Draper Co.
Knapp, Chas. H.
Sipp Electric & Machine Co.
Whitin Machine Works.

Revolving Flat Cards.
Mason Machine Works.
Whitin Machine Works.

Ribbons and Piece Silks for Trimming Knit Goods.
Cheney Bros.
Sauquoit Silk Mfg. Co.

Silk Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.
Keyworth, Wm. C.
Knapp, Chas. H.
Mason Machine Works.
Sipp Electric & Machine Co.

Silk Yarns.
Cheney Bros.
Littauer, Ludwig.
Ryle, William, & Co.
Sauquoit Silk Mfg. Co.

Sizing Compounds.
Cummings, J. W.

Soap.
Holbrook Mfg. Co., The.

Spindles.
Draper Co.

Spinning Frames.
Mason Machine Works.
Schuchardt & Schütte.
Whitin Machine Works.

Spinning Rings.
Draper Co.
Whitaker Reed Co.

Tanks and Tubs.
Philadelphia Drying Machinery Co.

Tapes, Braids and Edgings.
Chapin, George W.
Weimar Brothers.

Temples.
Crompton & Knowles Loom Works.
Draper Co.

Threads.
Chapin, George W.
Littauer, Ludwig.

Thread Guides.
Palmer, The I. E. Co.
Whitin Machine Works.

Tinsel.
Littauer, Ludwig.

Twisters.
Draper Co.
Mason Machine Works.
Whitin Machine Works.

Winding, Beaming and Warping Machinery.
Altemus, Jacob K.
Draper Co.
Globe Mach. & Fdy. Co., Inc.
Knapp, Chas. H.
Lever, Oswald Co., Inc.
Sipp Electric & Machine Co.
Whitin Machine Works.

Wool, Hair and Skins
Northeastern Trading Co.

Wool Combers.
Crompton & Knowles Loom Works.

Woolen Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Hunter, James, Machine Co.
Lever, Oswald Co., Inc.
Philadelphia Drying Machinery Co.
Schuchardt & Schütte.
Woonsocket Machine & Press Co.

Woolen Yarns.
Littauer, Ludwig.
Queensbury Mills.

Wool Washing Machinery.
Hunter, James, Machine Co.
Philadelphia Drying Machinery Co.

Worsted Yarns.
Campion, Richard.
Littauer, Ludwig.
Queensbury Mills.

Yarn Testing Machinery.
Knapp, Chas. H.
Sipp Electric & Machine Co.

New Fibre Industry.

The *Melbourne Age* states that a syndicate has been formed in Melbourne to work a fibrous growth known as *Posidonia Australis,* which covers an area many miles in extent in Spencer Gulf, South Australia, and often reaches within three or four feet of the surface of the water. Large samples have been raised and cleaned, and it is believed that the discovery will be of great commercial value. The fibre, which is similar to jute tow, is strong, is almost uninflammable, and absorbs dye very freely. Its use is suggested for the following: Upholstery materials, woolpacks, corn sacks, ore bags, ropes, twine, mats, felting, tapestry, linoleum, packing, plaster making (instead of cow-hair), caulking ships, stuffing saddles, and as a general substitute for such articles as flock and kapok, or for cotton as a mixture with wool and silk.

Reports received show that under 4ft. of water there is about 12ft. of fibre.

Pottsville, Pa. The Tilt silk mills, after a shutdown of two weeks, are again working full handed.

The silk mill and the knitting industry at the Reber stocking plant are running with a full force on full time.

Reading, Pa. The Mount Penn Underwear Mill, Miller & Stondt, Proprietors, 11th and Greenwich Sts., is running on a 10-hour schedule, with occasional overtime, to fill the demand for their goods.

Shamokin, Pa. Messrs. Eagle Brothers, conducting the local silk mill, have issued orders to the Shamokin Lumber Company to proceed at once on a $20,000 extension to the mill building near Edgewood Park.

Passaic, N. J. Mr. George Rohlig, the well-known manager of the Botany Worsted Mills, reports a large increase in orders since Mr. Taft's election.

Paterson, N. J. Cardinal and Becker have taken possession of the second floor, formerly occupied by the Laurel Silk Co., and they are installing new looms. The Favorita Silk Co., formerly of Little Falls, has taken possession of the first floor, and have moved their plant in and are operating.

Binghamton, N. Y. About 20 additional looms have been installed by the linen mills.

Oswego, N. Y. The Knitting Company has started running its plant after a suspension of operations of several months. About 125 hands are employed.

Utica, N. Y. The Avalon Knitwear Company has erected a brick addition to its dye house 50 by 60 feet, two stories high, on account of its increased production.

Waterloo, N. Y. The Waterloo Woolen Manufacturing Company, which has been running on half-time for some months, after a complete shutdown of a year, began this week running on full time.

Clinton, Mass. The Brussels and Wilton departments of the Bigelow Carpet Company are operated on full time, and the Axminster department, which has been running on half-time schedule, is now running 5 days a week.

Fall River, Mass. The Stevens Cotton Mills have started on day and night work.

Fitchburg, Mass. The Parkhill Manufacturing Company has been obliged to put on a night force at its plant in order to handle the large increase in business.

Great Barrington, Mass. The Monument Cotton Mills, which have been running on short time for several months, have resumed operations in full

(*Continued on page xiv.*)

Palmer, Mass. The Palmer Carpet Mill, after a long period of more or less inactivity, has resumed operations in full.

Wakefield, Mass. The Harvard knitting mills have just entered on full time, after running on a four-day schedule for the past seven months.

Wilkinsonville, Mass. The new mill of the Army and Navy Cotton Duck Company was formally opened to the public by a concert and dance. The company will manufacture cotton duck and other cotton goods and fabrics.

Pawtucket, R. I. Two new mills, to give employment to 800 people, are to be erected in Darlington by the Royal Weaving Company.

Providence, R. I. The Hodgson Worsted Company will be known in the future as the Nornay Worsted Company. The plant is running full time.

The Oriental Mills, which have been purchased by Edgar J. Loewenstein, of Boston, are being refitted for the spinning of silk. Mr. Loewenstein, with Timothy F. Sexton, of Providence, and Moses C. Migel, of New York, have taken out incorporation papers under the name of the American Silk Spinning Company, with a capital of $250,000.

Westerly, R. I. A portion of the weave shop at the Lorraine Mill, which has been running on short time, has started up on full time.

Norwich, Conn. The Falls and Shetucket companies' mills have gone on full time.

Woonsocket, R. I. The Rathbun Knitting Company is erecting a big storehouse near its plant on North Main street.

The Rosemont Dyeing Company is erecting a bid addition to its works on East School street.

Baltic, Conn. The Shetucket Worsted Mills, M. H. Donahoe, Proprietor, has started on full time, after running on short time for about a year.

Elmville, Conn. The Pine Tree Worsted Co. has started on night work.

East Killingly. The Chase mills have started running on full time.

Versailles, Conn. The Totokett Manufacturing Company has installed 300 improved Whitin looms. Further improvement will be made.

Jewett City, Conn. The Ashland Cotton Mill, which since April has been running only four days a week, has gone on full time.

Moosup, Conn. The mills of the American Woolen Company have started on full time this morning after a period of curtailed operation.

New London, Conn. The Brainerd & Armstrong Co. has finished the addition to its weaving department, and the looms will shortly be installed.

Plainfield, Conn. The American Woolen Company's mills, employing 1,000 hands, have gone on full time.

The Fletcher Woolen Mills are running overtime.

The Jewett City Cotton Mills are on full time, after a year of depression.

South Norwalk, Conn. The Salts Textile Manufacturing Co., plush and men's wear, with plants here and at Bridgeport, will install more machinery and in turn employ 20 or 30 more hands, on account of the numerous orders for their products.

Thompsonville, Conn. After about a year's operation on short time, the various departments of the Hartford Carpet Corporation have gone on full time, as large orders are pouring in. It is mentioned that a large order has been received from the Government for carpets, amounting to half a million dollars. This is the mill where President Roosevelt's eldest son is learning the textile business.

Uncasville, Conn. The Uncasville Manufacturing Company, of Montville and Versailles, has bought the Mercer cotton mill of Uncasville. The mill will be started soon on full time.

West Winsted, Conn. The Winsted Silk Company has started again on full time, after running four and five days a week. Mr. A. H. Livermore is President.

Hooksett, N. H. The Dundee mills, which have been closed for the past eleven months, have resumed on full time, giving employment to about 300 hands.

Manchester, N. H. The Amoskeag mills, Mr. H. F. Straw, Agent, on account of the heavy demand for their product is running several departments day and night, adding at the same time new machinery in some of its departments.

Newmarket, N. H. The Newmarket Manufacturing Company will build a new three-story mill in the spring. Wm. H. Garner is the Agent.

Dover, Me. New looms have been installed by the Wassookeag Woolen Company.

Kezar Falls, Me. The Kezar Falls Woolen Company, Allen Garner, Agt., has started on full time, after having run on a short schedule for quiet a number of months.

(*Continued on page xvi*)

Baltimore, Md. The Phœnix Mills of the Consolidated Cotton Duck Company, in Baltimore County, and which has been idle for some years, it is reported, has re-opened, employing about 400 hands. A heavy variety of cotton duck are manufactured.

Fredericksburg, Va. The Virginia Shirt Company, which has been working at half to three-quarter time for the past year, has begun operations with a full force.

The Melville Woolen Company and the Washington Woolen Mills are running night and day with a full force of hands.

Burlington, N. C. The Bellevue Mills Company, Mr. J. M. Browning, Manager, is installing twelve new cards.

Greensboro, N. C. The management of the Revolution Cotton Mills, it is reported, has decided to build at once a bleachery to cost $40,000.

Gaffney, S. C. The Globe Cotton Mills, which have been closed down for six months, have resumed operations on full time. Both the Merrimac and the Limestone Mills are running day and night.

Laurinburg, N. C. The Scotland Mills have purchased 2,000 spindles and three roving frames from the Mason Machine Works of Taunton, Mass., and Charlotte, N. C. Mr. Howard is the popular Southern Agent of the latter concern.

Bristol, Tenn. The Jonesville Manufacturing Company (of Jonesville, S. C.) will establish a hosiery mill here. It has secured a building, and will install thirty knitting machines, accompanying equipment, dyeing plant, etc., for a daily production of 250 dozen pairs of hosiery.

Trenton, Tenn. The cotton mill, which has been closed for some time, has commenced operations.

Barnesville, Ga. The Aldora Mills have started up with a force of operatives. This plant originally cost about $200,000, but it failed in 1892. It now has all the financial backing it needs for a successful career.

Brunswick, Ga. The Brunswick Knitting & Manufacturing Company has taken over the Seigling Knitting Mill.

Columbus, Ga. The Topsy Hosiery Mills, owned by the Ely & Walker Dry Goods Co., of St. Louis, has ordered additional machinery. An addition to the plant will also be built to be able to increase the output by one-third. The mills are running now day and night in order to try and fill the demand for their goods.

Thomaston, Ga. The cotton mills of this place, Mr. J. T. Ingram, Treas., have decided to add 8,000 spindles to their plant. They manufacture Sheetings, Ducks and Yarn.

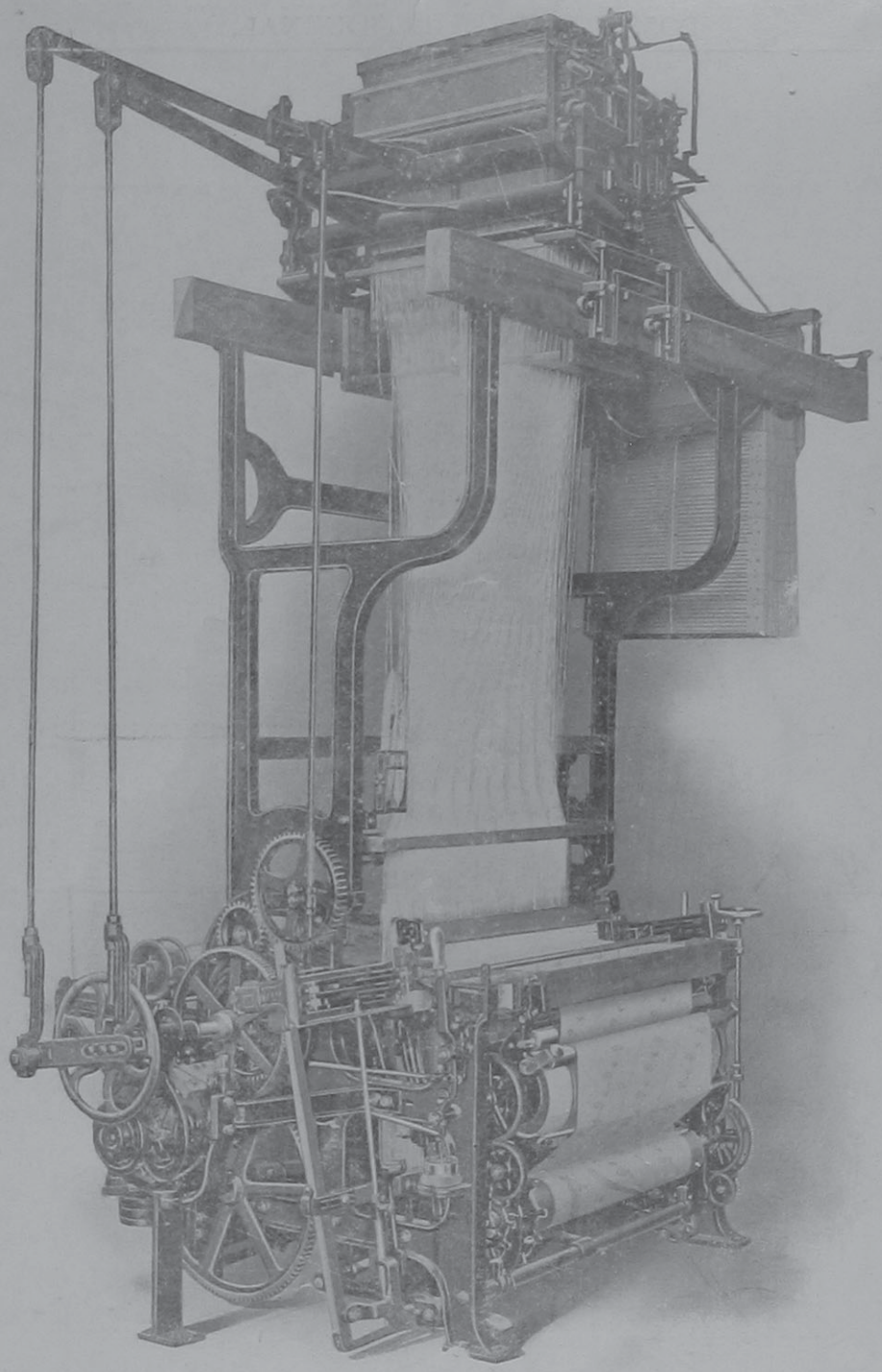
DICTIONARY OF WEAVES.

TWELVE HARNESS

12 × 12

TWELVE HARNESS

12 × 12



C. & K. JACQUARD SILK LOOM WITH MOTOR DRIVE

THE combined efforts of our experienced builders are directed toward a steady advancement year after year in all our varieties of weaving machinery. We want you to expect the best in every machine bearing our name.

CROMPTON & KNOWLES LOOM WORKS

WORCESTER PROVIDENCE PHILADELPHIA