

tricity of the rings to the spindle, the device shown in Fig. 274 may be employed. The *set* may consist of a wooden bobbin fitting the spindle, made about $\frac{1}{8}$ inch smaller than the ring, or a full bobbin of yarn shellacked over may be used. In the illustration, the set is an empty bobbin, with two adjustable bosses, one at the top of the bobbin, the other at the bottom. The method of using this device is as follows: After setting adjustable bosses, *A* and *B*, at top and bottom of traverse on bobbin, run ring *C* on ring rail, even with the top of upper boss *A* and adjust spindle concentric with ring. Next run ring down to lower boss *B* on bobbin. If spindle is not then concentric with ring, shim under base of spindle to throw spindle one-half distance needed at this point. Run ring up to top boss again and average adjustment to bring both bosses concentric with ring on ring rail. The spindles are always set while the frame is running with the builder motion disconnected.

Many spinners, however, prefer what is known as single setting, in preference to the double setting method just described. In single setting, the ring is brought to the centre of the spindle carrying its set bobbin, and the adjustment is made from this one position with as much accuracy as is practicable. While double setting is theoretically desirable, practically it is of no advantage, as one accurate setting in the centre is not only quicker, but, it is claimed that it gives better results all around.

It is well to have the second hand examine all the spindles in a room at intervals, to see whether any are vibrating excessively, as a spindle that is vibrating badly will not only make poor yarn, but will destroy the bearing, because of its pounding. The vibration of the spindle may be due to several causes, the step may need adjusting, the bolster may be broken, the spindle itself bent, or the bearing itself may have been worn loose. This latter defect in later types of spinning frames may be remedied by adjusting the fit of the bolster. Where the blade is badly worn out of round, it is well to supply a new one. If careful adjustment or replacement of bolster will not help the case, the spindle blade is probably bent and a new one must be used. The second hand should also look after the banding to see that the position of the snout or hook on the spindle base is not such as to rub and wear the band. Spindle bases should be kept clean, else the flying lint may get sucked in between the whirl and the base to such extent as to actually consume power in driving the spindle. As previously stated, it is a frequent custom in England to clean out their spindle bases, but this is seldom necessary with modern types of spindles, providing a good light oil is used. There will be a certain amount of grit always, but it will settle in the bottom of the base and do no damage. If it should be necessary to clean out bases, the method of cleaning recommended consists in taking out the bolsters and blowing them out with a steam jet or soaking them in naphtha. The bases can be cleaned with a suction pump and swab, or by means of a steam jet, provided they are taken out of the frames.

AIR CONDITIONING FOR TEXTILE MILLS.

Humidifiers.

(Continued from page 109.)

Another make of a Humidifier, lately patented, is shown in illustrations Figs. 6 to 9. The same is built either as a duplex or a single extension apparatus.

Of the accompanying illustrations, Fig. 6 represents a vertical longitudinal section of a duplex apparatus, with part of the elongated horizontal extensions shown broken off.

Fig. 7 is a like view of an apparatus, having a single spray head. In this make, the head is dispensed with and the fan and motor secured to the end of the primary extension. Two of these spray heads in one casing and one horizontal extension, are an arrangement also suggested.

Fig. 8 is a vertical transverse section on line *x-x*, Fig. 6, and Fig. 9 is a like view on line *y* of the same figure.

A description of the construction and operation of this humidifier is best given by quoting numerals of reference, and of which 1 indicates the head apparatus, and which in the duplex type (as shown in Fig. 6) is provided with primary extensions 2, and supplemental extensions 3.

As will be readily understood, the single humidifier shown in Fig. 7 carries only one primary and one supplemental extension. 4 indicates a fan propeller driven by an electric motor 5, and which supplies air from the room in which the humidifier is located, to the apparatus through the open top 6. In the duplex apparatus, 7 indicates a double walled deflector placed under the fan, to direct the air toward each end of the casing.

Water enters the apparatus in either type of construction, by supply pipe 9, extension or extensions 10 and spray head or heads 8, in finely attenuated spray. 11 indicates an annular deflector, having a corrugated wall against which the spray is projected with such force so as to cause the finely attenuated particles of water to be deflected and further broken up. The deflector is concentrically supported in the casing on stays 12, secured to the wall of the casing, forming an annular chamber 11' around the deflector. Within the casing is a spray chamber 13, for each extension of the casing, and in which chamber, the air passing through the casing, receives its initial saturation with water, supplied by the spray head.

14 is a grate, made of cypress wood, the bars of which form a plurality of collecting and evaporative bodies or surfaces 15, against which the saturated air impinges for condensing and extracting surplus water from the air and for the further saturation of the air before it issues from the humidifier. A door in the side of the head 1 of the casing, affords access to the interior thereof, and the supplemental extension 3 is provided with hinges 17 on one side, which are secured to the longitudinal drip pan 18, and the opposite side of the casing rests upon supports 19.

Surplus water is conducted from the drip pan 18 by a pipe 20. The whole apparatus is supported on rods 21 secured to the ceiling of the room.

For the purpose of cleaning the apparatus, the extension 3 can be thrown up on hinges 17, thus affording ample space for the introduction of a mop to clean out the lint, dust and other solid bodies drawn into the casing by the propeller fan. Means are also provided for heating in winter, the fresh air previously to its entering the apparatus through air ducts, dampers being provided to regu-

tain any dirt or foreign matter and prevent its being deposited on the warp threads. The spiral brush is rotated from the crank shaft of the loom, by means of a cam operating a ratchet and pawl arrangement; the return movement of the pawl is obtained by means of a spiral spring.

The spray thrown off by the apparatus is a very fine one, a greater or less quantity of moisture being thrown off in a given time, by altering the speed at which the spiral brush rotates.

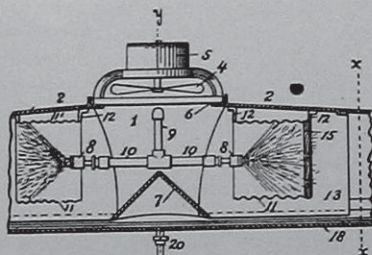


Fig. 6

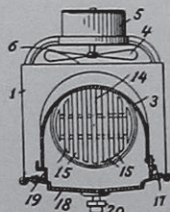


Fig. 8

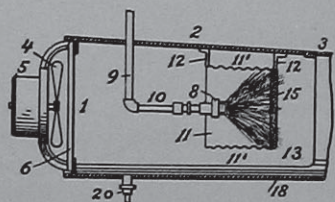


Fig. 7

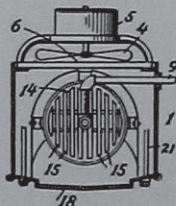


Fig. 9

late the supply of fresh air admitted, and which can draw either from the inside or outside of the building, or from both, as may be desired.

A Humidifier Attached to Looms.

This is what we might call a novelty in that line of apparatuses, hence a description will interest the reader. The claims of its builders are that more individual the application of the moisture—that is, in this instance—to the warp threads in the loom themselves, the more satisfactory the results.

The apparatus is adjusted to the two side frames of the loom, directly above the loom beam, and consists of a brass tube somewhat longer than the width of the warp on the loom beam. A portion of the wall of the tube is cut away, and inside this portion and bridging it, is a fine wire gauze screen. Rotating within the trough is a spiral brush, and placed slightly above the spiral brush is a stationary brush. Through a funnel and pipe, situated at one side of the apparatus, water is fed to the trough in a sufficient quantity, the amount of which can be determined by an adjustable over-flow pipe. The rotating spiral brush is partly submerged in water, and as it revolves it carries up the water with it, impinging in its rotation against the stationary brush in such a manner that a fine spray is thrown out of the apparatus through the gauze screen, and on to the warp threads. The spray is thrown on to the warp threads just as they leave the beam, and before they reach the whip roller, the wire gauze being employed to re-

THE DYEING OF AWNING STRIPES.

The manufacture of cotton fabrics intended for awnings, sun-shades and other articles which are necessarily subjected to prolonged exposure to light and weather requires close attention to the proper selection of the dyes to be employed, and also to the process for applying them, in order to secure the maximum result. If we make a careful inspection of awnings at the end of any one season—assuming that all were new at the beginning of the season—it is quite likely that we will find that the colors in many instances have faded away almost completely, while again it will be noticed that where the new stripe was of a beautiful rich green shade, it has changed completely to a dull greyish-green or to a slatey—or grey-blue; some awnings, at the season's end, show unmistakable signs of having been made of stripes absolutely identical as to weave and weight, but very different as to the colors used for dyeing, some portions changing their shade entirely or even bleaching out, while other portions of the same awning stand the rain and sun action very well. This defect, if such it may be termed, is directly the fault of the awning maker in not buying all his material from *one* manufacturer instead of several, and also in a great measure to the ultimate customer in not insisting upon a guarantee that all parts of the awning or set of awnings come from one mill.

As a general rule, the colors applied to awning stripes are dyed upon yarn, while in some instances the cotton raw stock has been dyed first, and then converted into yarn, and it is needless to remark that where the very best results are to be expected this latter process will always prove the best, for the reason that the fibres will be thoroughly dyed, and consequently the resulting yarn will be better enabled to resist the combined action of sun and weather, provided the dyes used are properly selected.

The shades mostly employed for awnings are: Brown, Buff, Blue, Green, and Slate; other colors, Red and Black, find employment only in the form of very fine stripes which are introduced into the texture simply to modify, or soften, the general effect.

Like all other dyeing processes, the treatment of cotton yarn calls for certain observation to details, specially as to time; in order to secure good results in awning work, ample time should be given to the handling of the cotton yarn in the dyebath, otherwise the color will be on the surface of the yarn only instead of through it. Preparatory to dyeing, the yarn should be well boiled-out; while many dyers

still employ the old process of boiling-out with soda, etc., yet a great saving in time may be effected if recourse is had to the use of one of the well-known soluble oils on the market, which not only wet-out by completely dissolving the natural oils and waxes of the cotton, but also the oil and dirt picked up by the cotton on its way from the breakers to the spinning frames. Wetting out with soluble oils, leaves the cotton thoroughly clean and consequently more easily penetrated by the dye liquor.

The brown most generally dyed upon cotton yarn for awning material is produced with cutch, a natural product which, up to the present has been very difficult to displace by any of the artificial colors, although strenuous attempts have been made to produce an artificial coloring matter which would yield shades of brown equal in depth, and having the same fastness to light, etc., and at or near the same dyeing cost, but without complete success. The nearest artificial substitute for cutch is one of the sulphur group of dyestuffs, and hopes are entertained that this will ultimately replace the older article. The *cutch brown* for this class of work is usually of the heavy shade, and is produced by the well-known method including the aftertreatment with bichromate of potash. In using the sulphur browns for these shades Immedial Brown RR may be regarded as the one producing the average shade required, and is dyed as follows: The dyestuff is dissolved in a wooden vessel by pouring upon it a sufficient quantity of hot water in which is previously dissolved a quantity of sulphide of sodium, equal to the weight of dyestuff taken. For deep shades about 15 per cent will be required, together with about $\frac{1}{2}$ lb. soda ash and $1\frac{1}{2}$ lbs. common salt for each ten gallons of dyebath. The dyeing is done at or near the boil for one hour, then lift, squeeze well, and wash. Finally, pass for $\frac{1}{2}$ hour through a boiling bath containing $2\frac{1}{2}$ per cent of bichrome and 4 per cent acetic acid, and afterwards wash well. In order that the peculiar *cutch feel* may be imparted to the yarn, it should be passed further through a third hot bath containing 3 per cent of alum, turned for about 10 minutes to ensure thorough penetration, and dried without washing. This treatment produces a shade of brown that, for equal depth into indigo, is equally if not faster.

The common buff shade used for awnings is produced with iron exclusively, no other coloring matters yielding such a shade equally as fast to weather nor as cheap. Either copperas, *black iron liquor* or nitrate of iron may be used for dyeing, afterwards passing the yarn through a weak soda solution to effect the proper fixation of the oxide of iron. It is needless to observe that this is rather a staining process than otherwise.

The green stripes most commonly met with are produced by two general methods, one by means of Immedial Dark Green B alone, or shaded with either Immedial Indone BF or Immedial Yellow D, dyed as described for the brown, and subjected to the same aftertreatment with chrome. Some such method as this produces a green shade, which when subjected to

prolonged exposure, changes if any very uniformly, while on the other hand, where the dyeing is produced by means of indigo topped with fustic, the change is not only rapid but quite irregular, for the reason that the yellow color of the fustic is the first to fade away leaving the blue of the indigo. After examining a very large number of green awning samples dyed by this method, it was noticed that the blue bottom was not uniform, that the shade remaining after removing the fustic by chemical means showed very plainly that the vat work lacked system and that the actual deposit of indigo was very superficial. While no argument is advanced regarding the possible advantages of the sulphur colors, it is believed that in yarn dyeing there is the advantage of almost complete penetration in a very short time in comparison with indigo dyeing, and further, that the dyeing is complete, while with indigo it is more or less a mechanical deposit of color. The writer is fully convinced that for this class of work the idea is to turn out a very large quantity in a given time, and to this end strong indigo vats are used to give *apparent* depth of shade, instead of weaker vats and more of them to give greater penetration.

For the occasional red stripes that are found in some goods, para red seems to answer all purposes, and indeed is the only one so far that resists prolonged exposure to weather. For black, the sulphur blacks again come into play, as they have certain advantages over aniline black which, while intense, is yet without the lurking danger of possible tendering on account of the mineral acid necessary in dyeing, and which is somewhat destructive to cotton.

The testing of awning material is a matter of importance to the dyer to aid in determining how a given sample was dyed, and also to the dealer in such goods to make intelligent comparisons of different grades, and to determine their worth.

(To be concluded.)

An Improved Dye-Jigger.

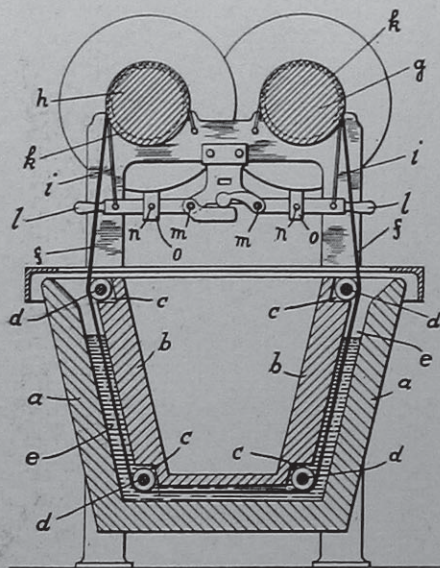
The object aimed at in the construction of this new dyeing apparatus is to economize in the amount of dye liquor used, and at the same time thoroughly immerse, saturate and dye the piece under operation.

The improvement consists in the use of a displacer, which displaces the liquor over a greater area and consequently subjects the fabric to be dyed, to a comparatively longer immersion.

Quoting letters of reference of the accompanying illustration, and which is a vertical section of the new Jigger, will best explain its construction: *a* indicates a metal or porcelain vat, rectangular in shape; being provided with an immerser *b* which is also rectangular, provided with recesses *c* at its corners for receiving the guide rollers *d*, so that the passage *e* for the dye liquor and the cloth to be dyed, is very narrow and of substantially uniform width.

The cloth *f* to be dyed, wound on roller *g*, passes from there around immerser *b* to the other roller *h*.

The immerser *b* almost fills the vat *a*; hence only a comparatively small quantity of dye liquor is required for the dyeing process, since owing to the displacement by the immerser *b*, the small quantity of dye liquor



used is spread over a much larger comparative area, and the piece *f* thus subjected to a longer immersion though less liquor is used.

For applying or removing friction to or from rollers *g* and *h*, bands *i* are provided. The same pass over brake wheels *k* secured to the shafts of the rollers *g* and *h*, the frictional contact being regulated on both rollers simultaneously from either side of the machine by means of the hand levers *l*, pivoted at *m* and with their inner ends in contact as shown. When adjusted, the levers *l* can be fixed by pins *n*, passing through same, and through the brackets *o*.

A New Sizing Composition.

The accompanying recipe is a patented process for a sizing composition to be used in the finishing of cotton and linen fabrics, especially adapted for household use.

It is well known that fabrics when washed, become limp and of bad appearance, being in turn made to appear attractive again, and agreeable to the touch of the hand, by subjecting them to heat and pressure in a calender. Owing to the complicated nature of such an apparatus, it is impracticable for use for household purposes. Starch with or without the addition of fatty matters has been used as a substitute for the treatment with hot calenders, but such materials, it is claimed by the inventor of the new process, do not give satisfactory results, because ordinary starch gives the fabric too much of a board-like stiffness, and the fatty matters being insoluble in water, prevent the fabric receiving any gloss or finish.

The object of the present invention is the production of a size or finish for cloth which will avoid all of the disadvantages mentioned, and which will at the

same time impart an attractive appearance and pleasant touch to the articles to which it is applied.

According to the inventor, wet starch (starch which has been suspended in water) is subjected to the action of gaseous sulfur dioxide, for a period varying from 10 to 15 hours. By this treatment the starch is transformed, in a very specific manner, into a product something between starch and dextrin, the adhesiveness of the starch being simultaneously diminished. Mix 100 parts of the thus treated starch, with 30 parts of a soap-like compound of ammonia with unsaturated fatty acids, preferably oleic acid. The resultant product is then dried, after which it is ready for use.

Logwood and Hematine.

By J. Dobroyd.

Extracts of logwood, known as hematine, have been much improved in quality and composition during the last few years. Formerly all the extracts were in the form of pastes with the coloring matter in many stages of oxidation, so that it was a common thing to find big differences between the behavior of various lots. Changing the extracts from the paste form to that of solid crystals was a great improvement both in case of transport as well as purity of coloring matter, while the concentration in strength was nearly doubled. Many of the old pastes appeared to contain a larger percentage of matter which was not hæmatein, and apart from a few which had been adulterated by the addition of glucose, the others contained tannin matters and cellulose. The exhaustive extraction to which the wood was subjected could hardly help bringing out other soluble substances besides the color, and these could be noticed as forming a dense clay-colored layer at the bottom of the cask.

It is common knowledge that the coloring principle of logwood is the colorless body hæmatoxylin, a glucoside which is split by oxidation into grape sugar and hæmatein. This conversion takes place during the maturing of the wood after cutting, and the fermentation which induces it is brought about by watering the beds of wood and allowing them to heat up to a certain point. New cut wood is yellowish and gradually changes to a deep crimson brown as it matures. The process may be hastened by a dose of very weak alkali or old wash, but at all times this is dangerous work and particularly so in hot weather. Completely matured wood must be kept in a cool, dry place, otherwise there is great risk of the fermentation going further when the wood will turn brown and lose all coloring properties.

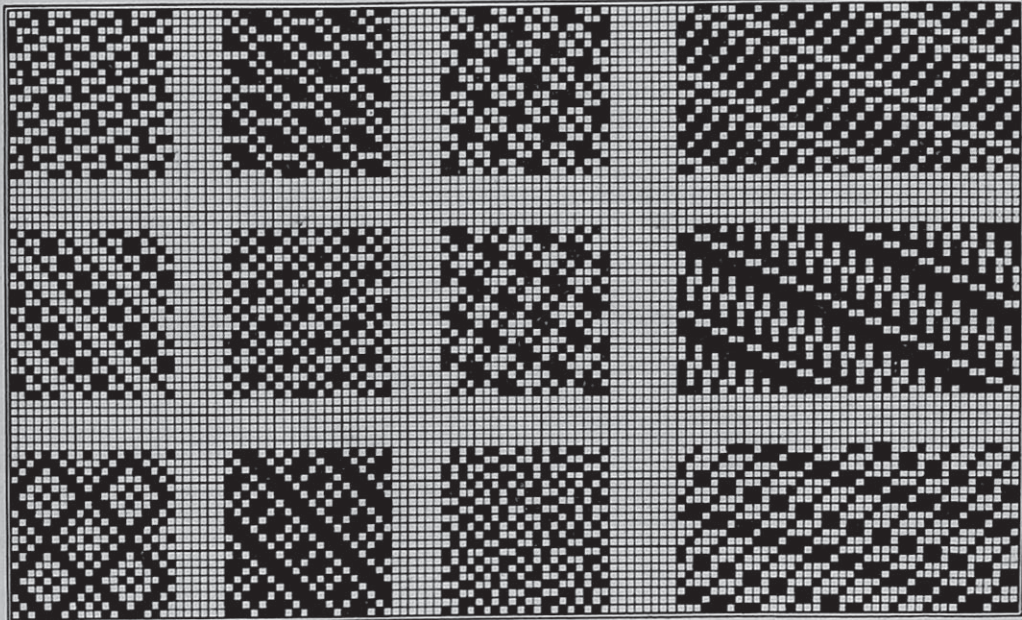
Of the respective merits of chipped or rasped logwood and extracts there is much to be said. For fine serges and for wool and slubbing, hematine is superior to wood as there are no chips or splinters to get into the fibres; it also answers well for full blacks and for cotton goods, but some makes impart a reddish tinge to the dye which is an unpleasant feature.

For brightness of shade and general bloom, the consensus of opinion appears to be in favor of wood, and it is very probable that this is so on account of the

(Continued on page xiii.)

DICTIONARY OF WEAVES*

TEN HARNESSES

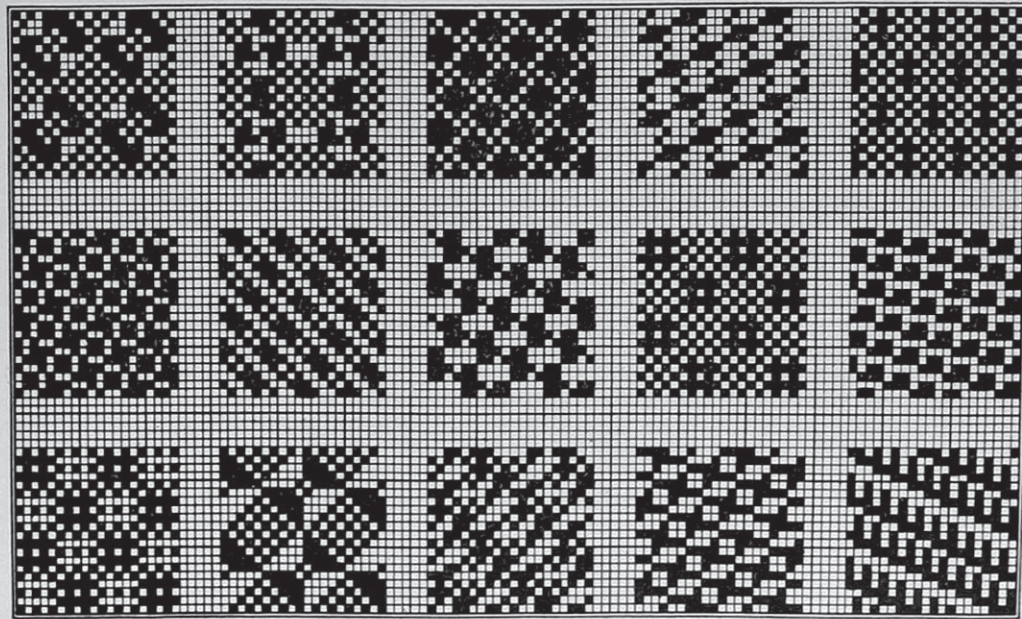


10 X 30

10 X 20

10 X 10

TEN HARNESSES



10 X 20

10 X 10

10 X 6

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

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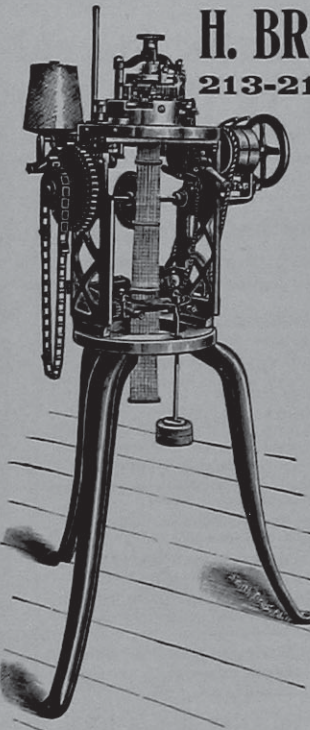
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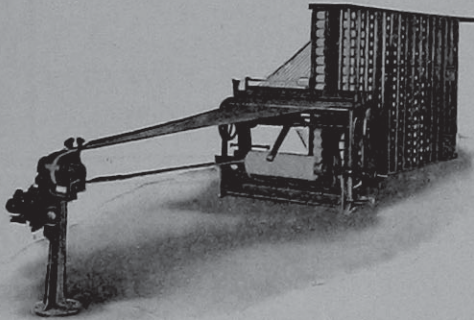
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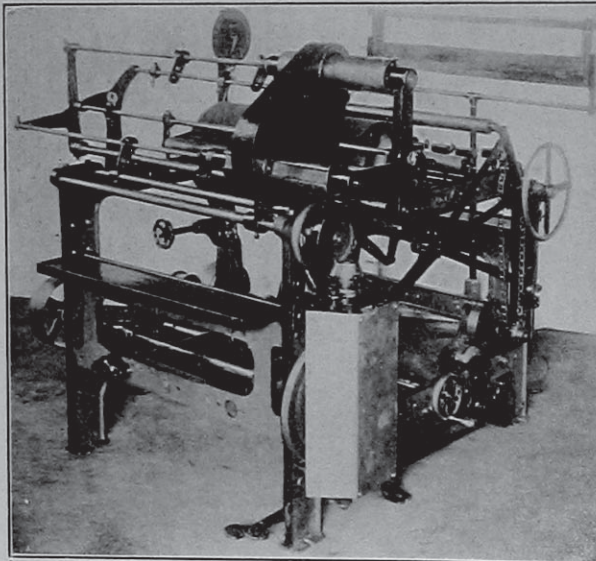
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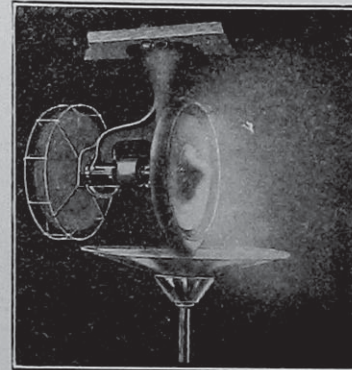
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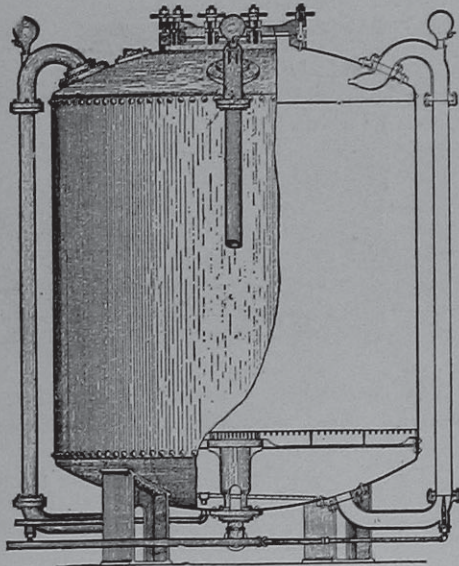
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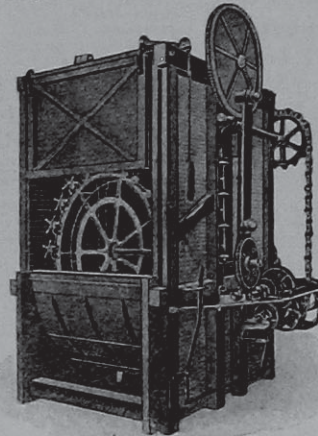
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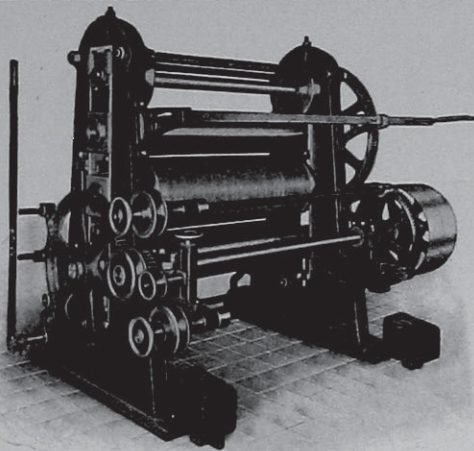
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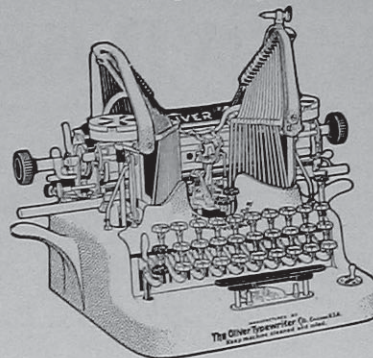
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The following item with reference to making wool non-shrinkable will be of interest to the reader: Caustic soda at 42 deg. B., produces a yarn of a decidedly increased tensile strength, while less concentrated liquors have a very decided weakening effect on the wool. The temperature for the process must be kept low, and the immersion of the material in the caustic extended not over more than five minutes. If a solution of bleaching powder is used to render the wool non-shrinkable, be sure to avoid concentrated liquors.

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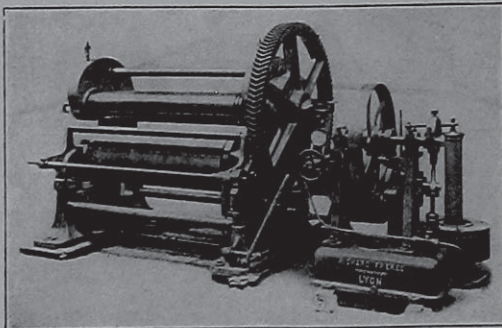
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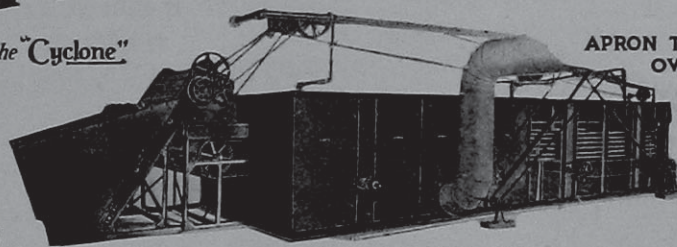
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IMMEDIATE INDIGENE R C L CONC. AND B C L CONC., are two recent additions by the *Cassella Color Company*, to their well-known series of Immedial Indogenes. They are particularly interesting to the dyer on account of their very close proximity to Indigo in shade; when used alone or in combination with each other, they produce every possible shade capable of production with Indigo. In general, their properties are excellent, fastness to light being very good and to washing very good, while dyeings boiled in an acid bath with white wool leave the latter untinted. Their fastness to sulfur is good, the shade being, if anything, somewhat clearer; to hot ironing, very good, while to chlorine, it is very fair. The brand R C L gives a somewhat redder tone than the B C L, the overcast of both, however, being bright and clear. Immedial Indogene R C L Conc. and B C L Conc., Pat. are dyed in the usual way for Immedial colors.

The following New Dyes have been lately brought into the market by the *Farbenfabriken of Elberfeld Co.*:

BENZO GREEN F F gives a clear yellowish green shade. It is dyed with an addition of Glauber's salt and soda; when after-treated with fluoride of chrome, its fastness to washing is improved. It is suitable for dyeing all kind of cotton material, also for machine dyeing. Dyed on silk, it is fast to water; on artificial silk it gives very full green shades. When dyeing half-silk, the cotton is covered deeper than the silk; half-wool is dyed almost uniform in shade, when treated below boiling point. On account of its bright shade, it is also of much importance for calico printing.

KATIGEN NAVY BLUE F F EXTRA gives a bright, somewhat reddish shade of navy blue. It is dissolved with double the quantity of sulphide of soda crystal and developed either by

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applying a warm airing for several hours, or by steaming. It is excellently suited for dyeing loose wool, yarn, cops and pieces, as also for linen and half-linen material, and possesses good fastness to washing and superior fastness to light.

KATIGEN INDIGO C L G G EXTRA gives a fine greenish blue shade. The color is dissolved with double the amount of sulphide of soda crystal and is otherwise dyed the same as the older brands of the Katigen Indigo group. It is especially serviceable for dyeing all kinds of cotton material for the manufacture of fancy woven cloths, bed tickings, blouses, shirts, aprons, etc., as also for piece dyeing.

BRILLIANT FAST BLUE 3 B X is chiefly employed for dyeing all kinds of cotton material which above all must be very fast to light. In dyeing half-wool, it will be found to dye the wool a somewhat deeper shade, whilst in half-silk dyeing, the silk is only slightly colored. On silk and artificial silk, very fine bright blues are obtained, but on silk the shades are not perfectly fast to water. It is also very well adapted for dyeing pale shades on the padding machine.

The following statement shows the value of the net imports of the principal cotton manufactures into the Chinese Empire during the year 1908:

Cotton blankets, \$95,745; cambrics, lawns, etc., \$168,090; chintzes, etc., \$576,550; drills, etc., \$2,512,250; flannel, \$1,238,250; handkerchiefs, \$133,705; jeans, \$2,005,900; lastings, \$10,249,200; sheetings, \$2,231,450; shirtings of all kinds, \$17,935,190; T-cloth, \$1,424,510; thread, \$569,400; towels, \$377,000; yarn, \$29,442,400; all other, \$3,124,060; total, \$72,083,700.

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The Neutralization of Turkey-red Oils.

In the neutralization of turkey-red oils with either caustic potash, caustic soda, or ammonia, a particular value belongs to the one and the others. When it is solely a question of preparing these products for sale with the highest possible percentage of oil, it is not advisable to employ caustic soda in neutralizing it, for then it becomes too thick and does not dissolve readily, and should any excess of alkali be added the turkey-red oil acquires a saddened coloration and is not quite clear. None of these defects, says Textile Recorder, may be feared by the use of ammonia. As, however, caustic soda is cheaper than ammonia, it is usual to neutralize about three-fourths of the acidity of the product with the caustic and to complete the neutralization with ammonia. In the instances where a clear, soluble product without excess of alkali is required, ammonia is much the better agent to employ, because any excess present is driven off in the course of drying. In the dyeing of pieces with alizarine red the ammonia turkey-red oil is much preferred, whereas for yarns both this and the soda oil is used. For the modified old red process of dyeing, in which potash is added to the oil-padding liquors, the product is neutralized with caustic potash rather than ammonia. In the application of the insoluble azo colors, especially paranitraniline red, a turkey-red oil neutralized with ammonia gives yellowish shades, with caustic bluer, and with potash still bluer. The greater hygroscopicity of caustic potash over caustic soda causes goods prepared with a potash oil to take a longer time in the drying. The soda oil is mostly used in preparing goods for printing with alizarines on account of the usefulness of the soda present in neutralizing the acids formed in the subsequent operation of steaming, and thus preventing tendering of the fibre or soil-

ing of the colors. Moreover, in soap—it helps to remove the yellowish coloration usually acquired by the whites. In finishing operations the ammonia oil is preferred for obvious reasons.

THE IMPORTANCE OF SOAP SCOURING.

All cloths for vat dyeing must be thoroughly soap scoured previously, and the importance of this to the dyer cannot be overestimated. Not only must the scouring be thorough, but the dyer should have this operation under his immediate supervision so as to obviate all risks of carelessness. The mere fact of scouring until all grease and dirt is out, is not in its way sufficient; besides the impurities, the dyer should assure himself that every particle of the soap is also cleared away; otherwise even dyeing is impossible.

The work of removing the last traces of soap is by no means so simple as it sounds, while if hard or limey water is used the difficulty is increased, as white insoluble lime soaps are formed. Very small traces of these objectionable bodies are sufficient to cover the wool fibres with a thin film, and, being white, they are not visible to the eye. After dyeing, however, large cloudy places are often seen, and the levelling up of these is no easy matter.

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- Wool Dyeing (Part 2)**, by Gardner and Knaggs. \$3.00.
TABLE OF CONTENTS: Classification of Coloring Matters; Natural Dyestuffs: Logwood, Redwoods, Madder, Cochineal, Kerms 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.
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- Silk Dyeing Printing and Finishing**, by G. H. Hurst. Price \$2.00.
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- Dyeing of Textile Fabrics**, by Hummel and Hasluck. Price \$2.00.
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- Wool, Cotton, Silk; Fibre to Finished Fabric**, by Posselt. Price \$7.50.
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- Woolen Spinning**, by C. Vickerman. Price \$1.75.
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- Wool Combing**, by H. Priestman. Price \$1.50.
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A Complete Guide to Calculations Relating to the Construction of All Kinds of Yarns, Fabrics, and the Analysis of Cloth.
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A Complete Self-Instructor (with Questions and Answers) on this subject, treating machinery and processes as used abroad.

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PHILADELPHIA

The cotton crop of Russia this year will aggregate 380,000,000 pounds, or about 60 per cent of the requirements of the mills. From 6 to 8 per cent has been purchased from Egypt, leaving buying orders in the United States of from 32 to 34 per cent. No India cotton was needed on account of the bumper crop raised in Central Asia.

In the course of the past few weeks some 2,000 French Canadian mill workers have come to the villages of eastern Connecticut and to Rhode Island from their northern homes, to which they had gone to engage in mill work and farming. They report that mill conditions in the Dominion are bad, wages low and farming conditions unsatisfactory.

The British Consul at Milan has forwarded the following return of the silk conditioned at Milan and other European silk centres during the nine months January to September, 1909, compared with the corresponding period of 1908, expressed in Kilograms:

Silk Centres	1908.	1909.
Milan	6,661,840	7,597,035
Lyons	5,318,702	5,632,143
Zurich	1,043,636	1,097,089
Crefeld	346,056	410,314
Basle	357,088	539,254
Turin	322,281	400,424
Elberfeld	359,539	529,057

MILL NEWS

Philadelphia. Marshall Brothers, Agts., Adams and Frankford avenues, Frankford, have added the manufacture of Bobbins and Spools for Worsted Mills to their out-put.

They have the reputation of making some of the strongest bobbins and spools met with in the market, a feature which explains their success in running their plant to its fullest capacity in the manufacture of Bobbins and Spools for Cotton, Woolen, Worsted and Silk Factories.

The Model Mills Co., to whom a charter of incorporation was recently granted, with a capital of \$150,000, and the incorporators of which are Thomas Boggs, Samuel R. Boggs and George W. Boggs, propose to build on a lot at the northeast corner of Ontario and I streets, which it recently purchased, a large factory, consisting of a five-story, reinforced concrete building, 285 by 70

feet, and a boiler house, one story, of reinforced concrete, 92 by 35 feet. They are to manufacture Wilton and body Brussels rugs. At Second street and Allegheny avenue, the same interest manufactures ingrain carpets under the name of Thomas Boggs & Sons, Inc.

The Roosevelt Worsted Mills, manufacturers of worsted, weaving and knitting yarn, report that they are very busy, both finishing up light-weight contracts and working on heavy-weight yarns, with orders running well up to March, 1910.

The Kennebec Worsted Co., Ltd., are reported working on contracts which will keep them busy until March.

The Industrial Dyeing and Finishing Works, it is reported, will erect a two-story office addition, 56 by 22 feet.

Lots adjoining the plant of the Hellwig Silk Dyeing Co. have been purchased by the concern. They will erect a three-story dyehouse, 92 by 98 feet.

Bridgeport, Pa. James Lees & Sons Company, manufacturers of worsted and woolen yarn, have completed arrangements for the installation of machinery in the large addition to their plant, consisting of a five-story building, 200 by 80 feet. About two-thirds of the building will be equipped with woolen and worsted machinery. The company has also added about 500 horse-power to its plant for furnishing the power for the new mill.

Chester, Pa. The plans for the new silk plant to be established in Marcus Hook by Samuel Courthauld & Co., Ltd., the prominent silk manufacturers of England, have been completed. The following buildings will be erected: Main building, 130 by 400 feet, one story, with sawtooth skylights, adjacent to which will be an engine house 54 by 150 feet and boiler house 90 by 65 feet, both one story. There will also be a winding and sorting building 76 by 131 feet, five stories in height, and two other manufacturing buildings, one 64 by 100 feet, one story, and the other 42 by 71 feet, two stories and basement. The first operation will require about 1,800 operatives and it is expected that this number will be employed within eight or nine months from the time the buildings are completed and equipped with the machinery. About two-thirds of the employes will be females.

Northampton, Pa. The Allen Silk Co. has been incorporated with a capital stock of \$50,000.

Throop, Pa. The Throop Silk Throwing Co. whose mill is now in course of construction will give employment to 150 persons. The concern is capitalized at \$50,000.

Passaic, N. J. Owing to the increase in the new tariff on imports of belting, one of the largest belt manufacturing concerns in Europe, the R. & J. Dick Co., of Glasgow, Scotland, is to erect a plant here, to meet competition. The concern has purchased two acres of land near the Passaic city line, on the Lackawanna Railroad, between Clifton station and Passaic. The new plant, it is reported, will consist of a main building 200 feet by 250 feet, a power house 50 feet by 90 feet and a number of small buildings. Work has been begun on the foundation, and the plant may be ready for operation early next year.

Amsterdam, N. Y. The Van Brocklin & Stover Co., manufacturers of men's and boys' balbriggan underwear, has purchased the plant of the New Globe Electric Contoller Co., and will use the two large buildings for manufacturing its product.

The Shaughnessy Knitting Mills have removed to Watertown, N. Y. A new building, 50 by 150 feet, will be erected at the latter place. About fifty girls have already commenced work in the quarters secured in the Wise Block.

Broadalbin, N. Y. Henry C. Finch has been chosen president of the Broadalbin Knitting Co., Ltd., succeeding the late David D. Grouse. Mr. Finch has been a director of the company since its organization. Mr. R. C. Smith is the manager of the concern.

Fort Plain, N. Y. The Fort Plain Knitting Company has certified to the Secretary of State that it has increased its capital from \$100,000 to \$150,000.

Little Falls, N. Y. The knitting mills of the city are enjoying a season of prosperity. Several of the mills now run until 12 o'clock Saturday night and open up again on Monday morning at 12 o'clock. The sweater coat demand is very heavy and now nearly all the mills of the city are making this article.

Mohawk, N. Y. The Muldoon Underwear Co., capitalized at \$225,000, with J. J. Cook president, William Muldoon vice-president, D. Le Roy Dresser treasurer, and C. W. Gould secretary and assistant treasurer, has purchased from H. M. Golden, the mill of the Paragon Knitting Co., which has been idle for some time. It contains eight sets of cards, 2,400 spindles, 52 knitting and 100 sewing machines.

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Schenectady, N. Y. The Alpha Knitting Company will give up possession of their plant here on March 1, the mill property having been bought by the American Locomotive Co. Two hundred and fifty persons are employed in the mill making first class all-wool underwear. Schenectady will, of course, make an effort to retain the industry although Albany may get it, the concern being owned by Albany people.

Valatie, N. Y. The Harder Mills have 700 bales of cotton on hand, and no shutdown will result in these mills from the high price of cotton, since its supply will not be exhausted until well in the year of 1910.

Waterford, N. Y. The Kavanaugh Knitting Company is to be dissolved on application of the directors. It is reported that a new corporation will be formed by C. H., George and Fred Kavanaugh.

Whitehall, N. Y. The Champlain Silk Mills has certified to the Secretary of the State that its capital has been increased from \$100,000 to \$1,000,000.

Fall River, Mass. The Marble Quality Manufacturing Company, of Fall River, has been chartered with a capital stock of \$20,000. The corporation will manufacture knit goods of every kind, including hosiery, underwear, jerseys, etc. Clarence E. Marble, of this city, is president and treasurer of the new corporation; John J. McGettigen and Hugh L. McGettigen, also of this city, are vice president and clerk respectively.

Holyoke, Mass. The Farr Alpaca Company has contracted for a new turbine to cost \$100,000, for their No. 2

mill. When the weave sheds of the company, now in course of erection on the east side of Bigelow street, are finished, the large mill building on the west side of Bigelow street will be torn down and a still larger one erected in its place.

Lawrence, Mass. The large corporation boarding house at the corner of Canal and Jackson sts., will be replaced by a modern warehouse of brick construction, to be erected by the American Woolen Co. in connection with their Washington Mills. The new warehouse is to be three stories in height, and will extend from the new Washington Mills office building to Jackson st.

Lowell, Mass. The Merrimac Manufacturing Company is constructing a two-story addition, 88 by 120 feet, costing \$25,000, to their dyehouse. A new building adjoining the dyehouse will also be built. This structure, which will be constructed of brick, will be three stories high, 147 by 165 feet, and cost \$50,000.

New Bedford, Mass. Edward O. Knowles, treasurer of the Bristol Mill, has resigned, it is reported, because of a disagreement with the policy of the president of the corporation, Walter H. Langshaw.

Walpole, Mass. Changes in its plant are being made by the Lewis Manufacturing Company. The designs for the new cotton mill provide for a two-story building 130 feet by 60 feet, to be used for finishing. The construction for this building is already started. Other buildings are to be erected to take the place of some of the older buildings of the plant.

Harrisville, R. I. The William Tinkham Company expects at once to erect a new mill, adjoining the mill which it recently sold to the U. S. Worsted Co. The new building will be occupied by the Glen Worsted Company and the Royal Worsted Company, both of which plants are now located in the property recently acquired by the U. S. Worsted Co. The new plant will consist of a main building of concrete, three stories high and 250 by 42 feet, a boiler house 36 by 50 feet, an engine room 32 by 50 feet, a dry-room 32 by 80 feet and a stock house 44 by 72 feet.

Pawtucket, R. I. The Pawtucket Dyeing and Bleaching Co., one of the properties of the Blodgett & Orswell Co., whose main plant is located on Front st., it is reported, have decided to erect a new mill of brick construction for its own use on the shore of the Ten Mile River, just north of Central ave. The firm now occupies the mill of the Lebanon Mill Co. on the bank of the Ten Mile River, south of Central ave. The new mill will have a frontage of 200 feet, with a depth of 150 feet. The gray room, dry room and storage departments will be 2½ stories high, while the remainder of the structure will be one story. The estimated cost of the new building is \$42,000.

The J. & P. Coats Company, Ltd., otherwise known as the thread trust, has announced \$14,508,330 profits for the fiscal year ended November 1. This is \$3,900,000 more than the profits announced last year and the best record in the history of the concern.

(Continued on page *xxi*)

Woonsocket Speeders Lead



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MILL NEWS

(Continued from page xix.)

Peace Dale, R. I. The Peace Dale Mfg. Co. is making improvements to its plant and adding new machinery.

Providence, R. I. The new mill building of the Norway Worsted Co., of this place, is now in process of construction, and is progressing so well that it is expected it will be ready for work by the time the Journal reaches our readers. The company will generate its own electricity for running the machinery. The new mill is of brick, the dimensions being 175 by 80 feet, and will have accommodations for 20,000 spindles. H. S. Edwards is treasurer and A. T. Hustler, manager of this mill, the output of which consists of worsted and novelties.

Woonsocket, R. I. Woonsocket is to have a worsted yarn mill of from 8,000 to 10,000 spindles' capacity provided the plans of the promoters materialize. Charles Harding, of Boston, formerly of the firm of Harding & Whitman, and others plan to erect such a structure on land belonging to Edward Harris Rathbun, and located in the rear of Cold Spring Park, provided the city will build a highway 300 feet long from River street to the Blackstone River, and build a 60 foot bridge across the river to the mill.

The Lafayette Worsted Co. is building a new 50 by 50 feet boiler house. The work is being done by the J. W. Bishop Co.

East Hampton, Conn. It is rumored that the Summit Thread Company will equip its plant with automatic sprinklers. A tower, 100 feet tall with two tanks, one holding 20,000 gallons for use in the dyehouse and a larger one holding 40,000 gallons for fire purposes are erected.

Hartford, Conn. The Narrow Fabric Corporation of Orange has filed with the Secretary of State a certificate of the action of its stockholders in increasing the company's capital stock from \$100,000 to \$200,000.

Middletown, Conn. Construction has been begun on the new factory to be erected at South Farms by the Russell Manufacturing Company adjacent to the new building erected last year. It will be 185 by 62 feet, three stories, to be used for weaving.

New Britain, Conn. The American Hosiery Company is considering the building of an addition to its plant.

South Norwalk, Conn. The J. & J. Cash Co., Ltd., is planning to expand its plant. It has secured a tract of land adjacent to its plant and will use it as the site for an additional factory.

Staffordville, Conn. The new City Mill, owned by the Fabyan Woolen Co., and which has been idle for over 2 years, will be started again.

Stonington, Conn. The Stonington Velvet Mill Company, it is reported, will erect a two-story brick addition to its plant.

Thompsonville, Conn. The Hartford Carpet Corporation, it is reported, are having plans drawn for building a large mill on land located inside of the mill gates. The building will be 385 feet long, 110 feet wide and 4 stories high. It will be built of brick, like all other structures of the mill, and will be one

of the largest located in the mill yards. The new mill will be used for making moquette carpet, and 400 looms will be placed in the building.

Manchester, N. H. The Leighton Machine Co., manufacturers of underwear and sweater machinery, winders, etc., together with the Dodge Needle Co., are planning the building of a new plant in East Manchester.

Meredith, N. H. The Meredith Linen Mills are making a large amount of improvements to their plant. A large addition is being erected, which will have a concrete foundation, and a new concrete dam will also be built. A new penstock for conducting the water from Lake Watkewan will be built, which will have a steel tube 6 inches in diameter. The plant is equipped with 1,224 spindles and 36 narrow looms.

Tilton, N. H. The Tilton Mills are reported running day and night.

Bennington, Vt. Most of the knitting mills are running five nights a week.

The Holden, Leonard Co., is having new looms installed, about 70 will be put in.

Lewiston, Me. The new cotton mill of the Hill Manufacturing Company is completed. It is six stories in height and gives employment to about 400 additional operatives. The mill costs about \$300,000.

Lisbon, Me. The Farwell Mills are building a new weave shed, 54 by 150 feet, of brick construction with Monitor roof, for holding 48 new Northrop looms.

Lisbon Falls, Me. The Worumbo Manufacturing Company is building a large wool storehouse, also a machine shop and electric power plant.

Old Town, Me. It is reported that the American Woolen Co. is considering buying the Ounegan Woolen Co. mill. Thus far the parties are about \$10,000 apart in their figures, the price asked, it is rumored, being about \$60,000 and that offered \$50,000. It is thought that an agreement will be reached.

Saco, Me. The York Manufacturing Company, of this city, through Smith, Hogg & Co., agents, have entered suit in the United States Circuit Court for the Southern District of New York against the York Manufacturing Company of 37 White street, New York City, to restrain alleged infringement of name and brand on cotton piece goods.

Bessemer City, N. C. The Slater Manufacturing Co. has changed its name to the Osage Manufacturing Co. and ordered 400 additional looms.

Concord, N. C. The machinery for the new dye house at the Locke Mills has been received. When erected, it will be one of the most complete dye houses in N. C.

The Kerr Bleaching & Finishing Works has increased its capital stock from \$25,000 to \$45,000. The amount named pays for replacing the burned building and machinery now completed.

Gastonia, N. C. The Flint Manufacturing Company has contracted for and begun the installation of considerable new spinning machinery, additional to present equipment. It is adding 2,000 spindles and accompanying machinery, including cards, cone winders, etc.

Greensboro, N. C. Reports are current here, that Caesar Cone of the

White Oak Cotton Mills and the Proximity Manufacturing Co. will build a mill to manufacture marketable products from the waste of those mills.

Hickory, N. C. Messrs. J. A. Martin, of this city; John H. Carter and J. G. Merrimom, of Asheville, N. C., have incorporated the Asheville Quilt Mills with a capital stock of \$150,000.

Rutherfordton, N. C. The reorganization of the Levi Cotton Mills, which have been in the hands of receivers for some time, has just been perfected. S. B. Tanner, former president of American Cotton Manufacturers' Association, is president of new company, which is capitalized at \$100,000. The mill will start up as soon as business conditions warrant operations. The name of reorganized company is the Cleghorn Cotton Mills; Mr. Mills, of Rutherfordton, is secretary and treasurer and R. P. Scruggs, general manager of the mill.

Anderson, S. C. Orders for several hundred bales of Indian cotton have been placed by H. C. Townsend, president of the H. C. Townsend Cotton Mill, Anderson, and Ellison A. Smythe, president of the Pelzer Manufacturing Co. These mills will experiment with the Indian cotton, and if it is found that it works satisfactorily, large orders will probably be placed at once. This is being done on account of the high price of American cotton.

Central, S. C. The Isaqueena Mills is rapidly constructing the 175-foot extension in which is to be placed an equipment of about 12,000 spindles and 300 looms, which will about double the plant.

Dickson, Tenn. Mayor Turner of this city is in communication with parties in Virginia who seek to locate a lace factory here.

Lafollette, Tenn. The Lafollette Hosiery Mills have been incorporated by K. M. Lafollette and others with a capital stock of \$25,000.

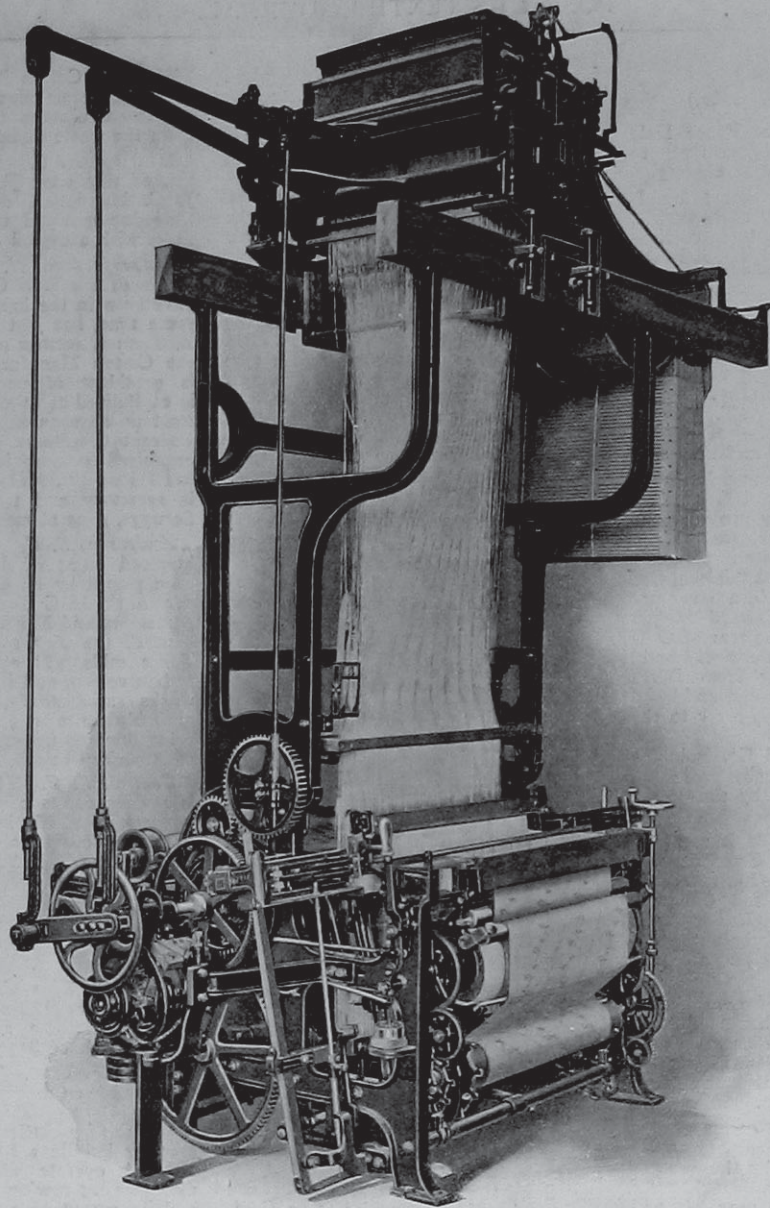
Nashville, Tenn. The Mays Hosiery Mills has been incorporated with capital stock of \$60,000. This company succeeds the Rock City Hosiery Mills, and is now erecting buildings for a modern plant. It will operate about 300 knitting machines, 25 sewing machines, etc., for a daily output of 1,000 dozen pairs of hose.

Newport, Tenn. The Bellevue Cotton Mill has been leased to W. C. Cooke, of Spartanburg, S. C., and C. M. Cooke, Jr., of the Transylvania Cotton Mills, Brevard, N. C. The lessees will continue the operation of the plant, which contains about 4,000 spindles, on the manufacture of cotton yarns, and will also install machinery for knitting a portion of that yarn output into hosiery.

Wilmington, Del. The Rising Sun Knitting Co., with a capital stock of \$100,000, has been granted a charter; they will manufacture cotton and woolen goods.

Suffolk, Va. Work has been started by the Bell Hosiery Mills on the erection of a 40 by 100 ft. building, to be equipped with 12 ribbers, 12 footers, hosiery drier, etc.

Dublin, Ga. It is rumored that the Georgia Cotton Mills, formerly known as the Dublin Cotton Mills, have begun operations on their plant, and are installing the machinery.



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