

## NEW DESIGNS AND FABRIC STRUCTURES.

**TAPESTRY:** Fig. 1 shows us a new design for a fabric, just patented by Otto Zschaemisch; assigned to the Vigilant Mills of Philadelphia.

**WOVEN TRIMMING:** Fig. 2 represents a face view of a piece of Trimming; the design of which has just been patented by E. Rump; assigned to the Wm. H. Horstmann Co., of Philadelphia.



Fig. 1

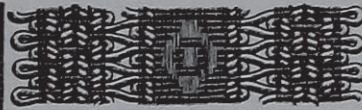


Fig. 2



Fig. 3

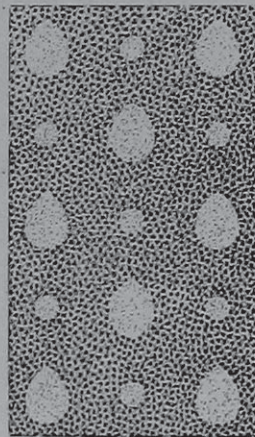


Fig. 4

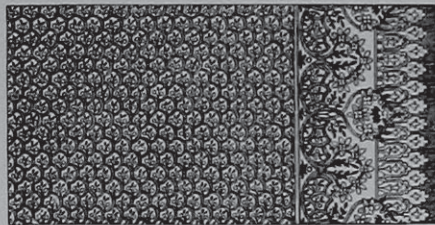


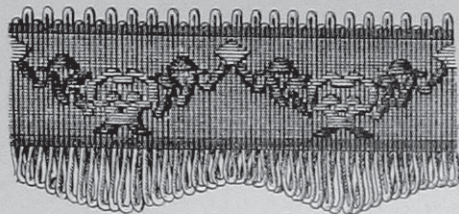
Fig. 5

**WOVEN FRINGE:** Fig. 3 represents a face view of sufficient of a strip of Fringe, the design of which has just been patented by E. Rump; assigned to the Wm. H. Horstmann Co., of Philadelphia.

**KNIT FABRIC:** Fig. 4 shows a design for a Knit Fabric, patented by C. H. French; assigned to French & Ward of New York City.

**CARPET:** Fig. 5 shows a new design for Carpet, recently patented by the Bigelow Carpet Company of Clinton, Mass.

## Design for a Curtain-Edging.



The same has just been patented by C. Weinberg & Company, of New York.

## AIR CONDITIONING FOR TEXTILE MILLS.

(Continued from page 73.)

## Humidifiers.

Two distinct classes of humidifiers are in use, viz:

- (1) those that pulverize water into vapor and
- (2) those in which the air is charged with moisture prior to its injection into the room.

The most simple, but at the same time most effective Humidifier of the first kind is the HYGROSSO. The same is driven either by Belt power, see Fig. 1, or a direct connected Motor, see Fig. 2.

In connection with this humidifier, the water, hot or cold, and with or without pressure, is fed into the hollow of a revolving disc and there pulverized into the finest possible vapor, by centrifugal force. At the same time, the fan, blowing directly over the case, circulates the air and distributes the moisture most uniformly throughout the room.

The construction of this humidifier is strong and simple. Its case is of cast iron, black enameled, and the revolving disc and the drip pan are of spun copper. The fan blades are steel, nickel plated, and the guard is brass, black enameled. The grid is of heavy sheet copper, and bearings are of frictionless babbitt with ring oilers.

Every part of the *Hygrosso* is readily accessible and there is no chance for the accumulation in it of any foreign matter. The fan action keeps the drip pan free from lint or fly avoiding any liability of choking the outlet.

Its installation is simple and inexpensive when compared with other systems which require special pumps or apparatuses for maintaining pressure on water, air, or steam lines, water levels, etc., and so a large expense is saved in the first cost, more particularly where a small installation is desired. Being independently actuated, either by belt or motor, individual heads are readily located in such positions as may be best suited for each particular case.

The average amount of water used is ten to sixteen gallons per hour for each machine, of which 25% is vaporized. The power consumed by each head is  $\frac{1}{8}$  H. P.

An accurate test recently made of the current consumed by one "Direct Connected Alternating Current Hygrosso Humidifier" showed the maximum current consumption under full load and under actual working conditions to be 90 watts, a little less than the amount of current used by two 16 candle power incandescent lights. The motor which is used in connection with this outfit is wound to take a normal load of 180 watts, and from the above it will be seen that the motor is carrying only half the load for which it is built. Working under such conditions, and with perfect ventilation which the construction allows, the motor should last indefinitely. Figured on the basis of the above test the current consumed in operating a system of Humidifiers of the above type would be only a fraction of the amount consumed in lighting the same mill.



POINTS OF MERIT claimed by the Builders of the Hygrosso are:

One head is sufficient for 20,000 to 25,000 cubic feet of space in the average mill—Compare this with the efficiency of others.

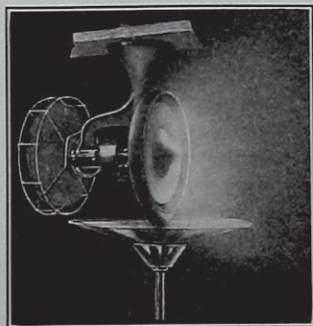


Fig. 1. Belt Driven Hygrosso

Each head can be operated independently—Often a great convenience.

It vaporizes 25% of the water employed—Other systems vaporize 3% to 5%.

No water or steam pressure is required in its operation—So water from any supply can be used.

No pump is required—Costly to buy and expensive to run.

No air pressure tank or float valves are needed—Necessary in other systems.

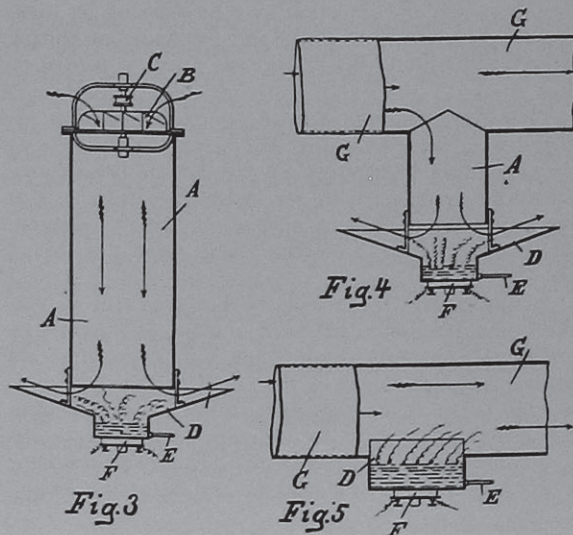
No strainer employed to become clogged and entail cleaning.

No troublesome atomizer nozzles needing readjustment as they wear.

No opening up for cleaning, everything open and no cleaning necessary.

Single head installations relatively as cheap as groups—Consider what this means.

An example of the second type of humidifiers referred to, is shown in diagrams Figs. 3, 4 and 5. This



apparatus has just been patented in England and will be of interest to our readers, illustrating what is being done abroad in the line of air conditioning. The new device consists of an improved arrangement of apparatus consisting of tanks automatically supplied

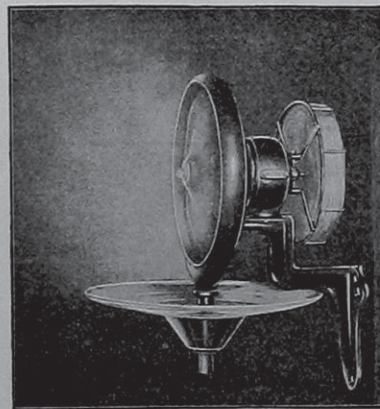


Fig. 2. Direct Connected Motor Hygrosso

with water and complete with electric heating attachments and electric circuit in conjunction with fans and tubing for diffusion and circulation.

In Fig. 3 a sectional elevation of an upright shaft arrangement is shown. The air is drawn into the shaft by the fan B, and rotated through the pulley C. At the base of the shaft A a vessel D is fixed with a space between it and the shaft. This vessel is kept partly filled with water by a pipe E leading from any source of supply. Under the vessel D, an electric heating appliance F is fixed, so that the water is heated, and the column of air forced down the shaft A on to its surface is humidified by the steam arising from the water. The humidified air passes out into the room, as shown by the arrows.

Where a complete mill is fitted, the air can be forced through an air trunk G, having a series of such units as described, attached to it as is shown in Fig. 4.

In some cases the vessel D may be fitted in the pipe G, as at Fig. 5, in which case the air in being forced through the pipe G partakes of the steam and may be delivered from the pipe G in a moistened condition at any part of the mill.

**Helidone Colors.**

H. A. Metz & Co., have issued a neat card, containing samples dyed with their new *Helidone Colors*, viz.: Orange R pat. paste; Red 3 B pat. paste; Red 3 B and Orange R. These colors are remarkably fast to light, acids, chlorine and other injurious influences. They are dyed in the Hydrosulphite Vat and can be used for cotton in any stage of manufacture, whether loose cotton, roving, yarn or piece goods. They are also suitable for wool and silk. Messrs. H. A. Metz & Co., claim that their fastness is approached by few colors on the market to-day.

They also show on the card, a sample dyed with their world famed "Indigo M L B/6 B."



### A Bright Vat Blue.

The new derivative of indigotine indigo M L B/6B (H. A. Metz & Co.) is a vat-dye which secures interest on account of its very bright shade.

For the purpose of application, the coloring matter is reduced directly in the dye bath. The water is first heated to a temperature of 65-70 deg. C., and then are added the necessary quantities of caustic soda, Turkone oil, and hydrosulphite; the mixture is well agitated, and the coloring matter pasted, with water added under further agitation. The bath is then allowed to stand for a short time. The reduction takes place quickly and is completed when the liquor acquires a golden-yellow coloration.

In general, the following rules are to be observed: Each gram of coloring matter employed requires 2 c.c. of caustic soda 40 deg. Bé., 2 grms. of calcined soda, 1 c.c. of Turkone oil, and 1 gm. of hydrosulphite (concentrated powder).

The ratio of oil compound and of hydrosulphite varies with increasing quantities of the coloring matter. For instance, 5 grms. of the coloring matter call for 5 c.c. of caustic soda, 5 grms. of soda, 2 c.c. of the oil, and 1½ grms. of hydrosulphite; 10 grms. of the dyestuff require 6 c.c. of caustic soda, 6 grms. of soda, 4 c.c. of the oil, and 2½ grms. of hydrosulphite.

In the dyeing of cotton yarns the previously boiled-out material is worked for about half an hour in the vat at a temperature of 65-70 deg. C., then squeezed and allowed to lie until the color becomes developed. The yarn is then treated in a boiling bath of either soap or soap and soda, or a hot bath of bichromate of potash and acetic acid, and washed in either case. After-treating with soap supplies the brightest shade of blue, whereas bichromate produces a somewhat greener shade.

For silks the vat is prepared in the same way as for cotton, but are dyed at a temperature of 60-65 deg. C. The silk is then washed and boiled for 20 minutes in a soap bath containing 15 grms. of Marseilles soap to 1 litre of water, again washed, and brightened with sulphuric acid.

In printing with indigo M L B/6B it is to be observed that a strongly alkaline hydrosulphite printing paste reddens the shade considerably, and correspondingly reduces its brilliancy. On this account, only the lowest possible amount of alkali should be present in the paste. As the re-oxidation of the leuco compound takes place but slowly by exposure to the atmosphere, the color is now readily and satisfactorily developed by steaming and washing and allowing sufficient time to elapse before soaping.

The printing paste recommended is made up of 100 grms. of the dyestuff, 75 grms. of glycerine, 50 grms. of caustic soda 40 deg. Bé., 50 grms. of glucose, 500 grms. of British gum, 1 : 1, which are heated to 40 deg. C. until reduction takes place, and then to add after cooling 60 grms. of sulphite of potash 45 deg. Bé., 50 grms. of olive oil, 50 grms. of hydrosulphite N F (concentrated), 1 : 1, and 65 grms. of water. The thickening for letting down the printing paste is composed of 350 grms. of British gum powder, 445

grms. of water, 50 grms. of glycerine, 100 grms. of sulphite of potash 45 deg. Bé., and 25 grms. of olive oil. It is remarked that an addition of 50 grms. of aluminate of soda, 20 deg. Bé. to each kilo of printing paste very appreciably favors the process.

### The Estimation of Indigo in Dyed Cotton Fabrics.\*

By Professor Edmund Knecht, Ph.D.

A process has been described in the July issue for the estimation of indigo in dyed cotton fabrics, in which the weighed amount of dyed fabric is first dissolved in warm sulphuric acid of 148° Tw., then diluted with water to precipitate the indigo, and filtered. The washed and dried precipitate is then sulphonated and titrated in the usual manner.

Mention is made in the paper that we had found the time required for filtering to vary very considerably. On some occasions the whole filtration could be effected in five minutes, whereas on others, in which apparently the same conditions obtained, the time required was frequently over an hour, the washing naturally also taking a longer time.

This difficulty has now been entirely overcome by a very simple expedient. If, namely, the solution of the fabric in the sulphuric acid is diluted to about four times its volume with water, and is then boiled for a few minutes, the precipitated indigotine becomes granular, and the liquid can then be filtered in from five to ten minutes. In the first experiments the bottom of the Gooch crucible was first covered with a layer of sand about ¼ in. deep, and on this an asbestos filter was formed by pouring on a suspension of fine asbestos in water. We now find it more advantageous to use as the bottom layer coarsely crushed quartz of about the size of millet seeds, then a layer of finer quartz of about the size of grain sugar, and lastly a layer of finely divided silica. The depth of the whole filter bed will be about ¼ in. To obtain the most rapid filtration it is not advisable to put on the full force of the pump from the beginning. If the filter is properly made, the first half of the liquid will run through rapidly, when the filtration may be assisted by turning on the vacuum slightly, and gradually increasing it until towards the end, when the pump is turned on full.

The time required for an estimation is thus reduced to a little over two hours, of which from 15 to 20 minutes is required for drying the precipitated indigotine, and one hour for its sulphonation, so that the actual time which the analyst requires for manipulation and calculation of the results need not exceed one hour.

After boiling the diluted acid it was noticed that the liquid frequently assumed a more or less intense yellow to brownish-yellow color, and it was thought at first that this might be the result of some chemical change between the dissolved cotton and the indigotine, resulting possibly in some loss of the latter. An experiment was subsequently conducted with a known amount of pure crystallized indigotine and a known

\*Paper read before the Society of Dyers and Colorists.



weight of cotton. The intensely yellow liquid was filtered, and the estimation carried out as usual, with the result that the whole indigotine was accounted for in the titration.

It was subsequently found that the yellow color was produced with cotton alone, and was probably due to the formation of caramel.

The following figures were obtained by the accelerated process, and are given mainly with the object of showing the agreement between the results obtained with permanganate and titanous chloride:

	By $TiCl_3$ .	By $KMnO_4$ .
Cotton dyed a medium shade of indigo	1.73 per cent	1.75 per cent
Indigo recovered from cotton rags	29.43	29.24

With indigos, and with cotton dyed in medium or dark shades of indigo, the use of the titanous chloride titration offers no difficulty. But if the amount of indigo contained in the dyed material is small, it becomes necessary to titrate the whole of the solution after sulphonating. The large proportion of sulphonic acid present in the solution renders the use of a very large amount of tartrate of soda necessary in order to obtain a sharp end reaction. To get over this difficulty the following simple alteration is found to work well. The diluted sulphuric-acid solution of the indigo is rendered alkaline in a fairly large conical flask by adding soda crystals (55 grms. for each 10 cc. of  $H_2SO_4$  used in sulphonating), and is then rendered acid again with tartaric acid before titrating.

In every instance a sharp end reaction was obtained with  $TiCl_3$  while  $KMnO_4$  was not always so satisfactory in this respect.

Allusion is made in my paper to the possibility of other coloring matters being present in the indigo-dyed fabric, and it is pointed out how they behave in the process. No mention is made, however, of the influence of direct cotton colors, which, however irrational it may seem, are sometimes used in spite of their looseness either for topping or bottoming indigo.

An experiment was tried first with cotton dyed with Diamine Black BH. In the 80 per cent acid this seemed to dissolve without decomposition, and was precipitated on diluting. In sulphonating, however, the color was destroyed, yielding a brown precipitate on diluting. That the liquid filtered from this would not influence the result of the indigo titration was shown by the fact that a known quantity of indigo solution added to it required exactly the same amount of  $TiCl_3$  to decolorise it as was required by the same amount of indigo solution diluted with water.

Columbia Black and Benzopurpurine 4 B are apparently not destroyed in the sulphonating process, and are completely precipitated on diluting with water, so that they can easily be separated by filtration before titrating.

Other colors, however, like Diamine Sky Blue and Diaminogene, are to some extent soluble in acid, and if not detected, may give rise to erroneous results. In case direct cotton colors have been detected in the preliminary examination of the dyed fabric, the safest plan to adopt is to wash the precipitated indigo, after filtration, with dilute ammonia, when any direct

cotton color will be at once rendered completely soluble, and will be carried into the filtrate. This mode of procedure does not apply to direct colors diazotised and developed on the fibre.

#### TESTING OF CHEMICALS AND SUPPLIES IN TEXTILE MILLS AND DYE WORKS.

(Continued from page 56.)

##### General Method of Testing Dyes, Dyestuffs and Colors.

All dyes must be tested as to the amount of water they contain. Water, up to a certain limit, can be added to a dye without it being noticed by the purchaser, it is obviously necessary therefore to find the amount of water present in a dye so that the purchaser does not pay for water instead of dye.

The general method of testing for water, is to heat a weighed portion of the dye in a crucible up to  $212^\circ F.$  ( $100^\circ C.$ ), until there is no further loss in weight. The amount in weight that the dye loses, is the amount of water present.

Very often insoluble impurities are present in the dyes. These impurities consist of sand, sawdust and even iron filings; sometimes gypsum and heavy spar are found. Heavy spar, when found indicates that the manufacturer introduced it purposely to increase the weight of the dye. All these substances are insoluble in water and in alcohol and therefore they can be readily separated. To effect this separation, the dye is dissolved in water and then filtered; the insoluble material remains on the filter paper, which for

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this reason, must be weighed before using. The filter paper is washed with distilled water or alcohol, until the wash water comes through the paper clear. The filter paper with the impurities on it is placed in a clean weighed crucible which is placed in an air bath where it is heated to 212° F. It is then weighed. Subtract from the total weight the weight of the filter paper, and the weight of the impurities is obtained.

Sometimes soluble impurities are present in the dye. These are ordinary salt (sodium chloride), Epsom's salts, (Magnesium sulphate), Glaubers salts, etc. To test for these substances, the dye must be first eliminated because it would interfere with the reaction. Since nearly all the dyes are of an organic nature, this is easily accomplished by igniting the dye.

The following test can be only used for the artificial dyes or for the extract from natural dyes; it cannot be applied to dyewoods or plants, because the ash from these plants would interfere somewhat with the test:

A weighed quantity of the dye is placed in a porcelain crucible and heated carefully at first, then at a very high temperature. The crucible must be uncovered so that the air can get at the dye and burn all the combustible material away. The heating is kept up until there is no further loss in weight. The residue is then dissolved in water. If there is any residue that remains undissolved, the solution must be filtered; the filtrate must be saved because it contains the soluble impurities in solution. The precipitate must be washed three or four times and the wash water added to the filtrate.

**SALT:** To test the filtrate for salt (sodium chloride), add a little silver nitrate to the solution, if a white curdy precipitate is obtained salt is present. Add silver nitrate, drop by drop, until no more precipitate is formed. Heat and stir the solution so that the precipitate collects to a bulky mass. Filter the solution; the silver chloride remains on the filter, this is washed three or four times, then five or six drops of the wash water are collected on a watch crystal and the watch crystal carefully heated until all the water is evaporated; if a residue remains, the precipitate must be washed until no residue remains upon evaporating five or six drops of the wash water.

The filter containing the precipitate is now dried in the air bath, which is kept at a temperature of 212° F. The air bath should be provided with a shelf which has perforations in it to allow the tube of the funnel to pass through it, so that the funnel may be held in a perpendicular position in the air bath. When it is perfectly dry, the precipitate is transferred to a weighed porcelain crucible. In transferring the precipitate from the paper to the crucible, the crucible is placed on a piece of clean glazed paper, so that any particles that may spill, can be recovered and be brushed into the crucible. The paper is then folded, placed on the upturned lid of the crucible and burned until a gray ash is obtained. A drop of nitric is added, then a few drops of hydrochloric acid. The lid is carefully heated to drive away the excess of acid. The precipitate in the crucible is heated until it just

begins to melt. Crucible and lid are then weighed and the weight of the silver chloride obtained, from which the weight of the salt can be obtained by the following formula:

Silver chloride : salt :: the weight of silver chloride obtained : the amount of salt present.

$$143.5 : 58.5 :: x : y$$

where  $x$  is the weight of the silver chloride,  $y$  will then be the weight of the salt present. The number 143.5 represents the numerical value of silver chloride, 108 for silver + 35.5 for chlorine. The numerical value of salt is 58.5 obtained by adding (23) the numerical value of sodium and (35.5) the numerical value of chlorine. The way to obtain the numerical value of any compound is to add the numerical values of each of its constituents. The numerical value of each element has been given in part I with the list of elements. It is there marked as the atomic weight. When a small number is placed alongside of an element, that number shows the number of atoms in that compound and the numerical value of element must be multiplied by the number, *e. g.*, the numerical value of  $\text{Na}_2$  is  $2 \times 23$  or 46, twenty-three being the numerical value of Na. This formula is always used when the amount of salt present in a substance, is to be estimated from the silver chloride present.

(To be continued.)

#### New Design for a Rug.

The accompanying illustration shows in plan view,



a quarter-section of a new design for a Wilton Rug, just patented by Thomas Develon, Junior, of this city.

The cotton exporting season at Savannah opened with a rush Sept. 15th. Four large cargoes were cleared for Europe, aggregating 29,291 bales; clearances via coastwise ports were 3,250 bales, making a total of 32,541 bales. The value of the cotton exported was more than \$2,000,000, unprecedented for so early in the season.



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**Boss Weaver and Designer** for medium size fancy cotton mill, at present in charge of Damask Table Cloth plant. Has also worked on bed spreads in prominent New England Mill. Thoroughly familiar with Jacquard Machines, card cutting. Married; references. Address L. K. B. (233), care of Posselt's Textile Journal.

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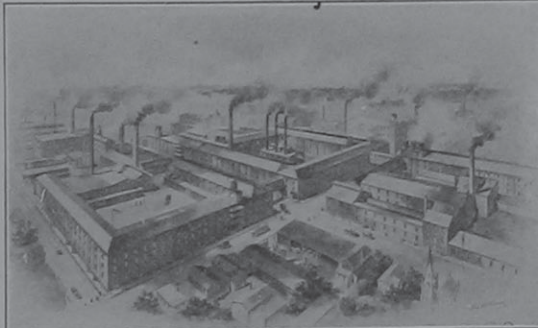
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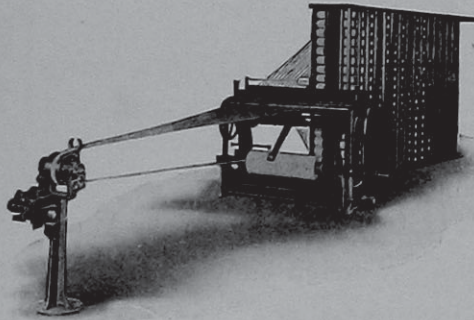
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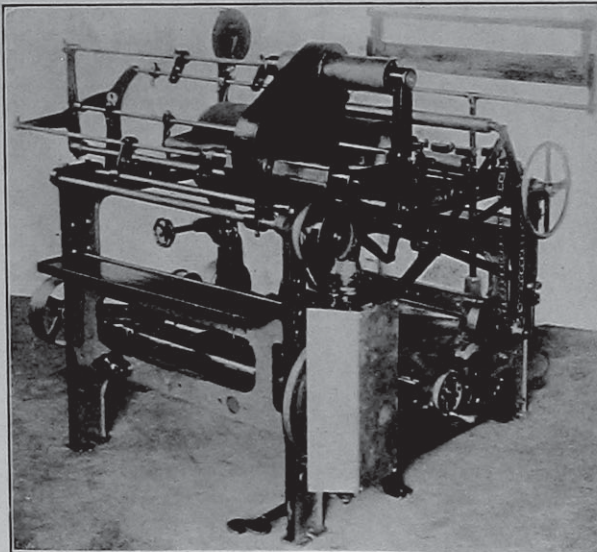
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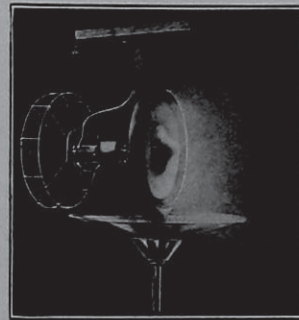
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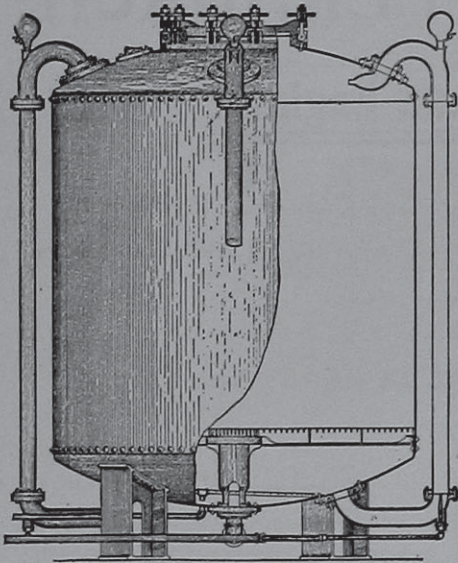
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**THE LIGHTING OF TEXTILE MILLS.**

(Continued from February issue.)

**Lighting Efficiency.** If common gas is used, economical consumption is obtained only by using Welsbach, or similar, mantles with a special form of burner. An ordinary "bat's wing" burner will give only 16 candle-power light burning 5 cubic feet of gas per hour, while with a good mantle 50 to 60 candle-power light per burner can be obtained, with only 3 cubic feet of gas used per hour.

Acetylene gas gives by far the highest intensity of light of all the artificial light sources, except the open-arc electric light. The average acetylene flame from a burner consuming 5 cubic feet of gas per hour has an intensity of 75 to 100 candle-power per square inch of flame, while the ordinary burner gives only about 5 candle-power per square inch, the Welsbach mantle having an intensity of about 20 to 25 candle-power per square inch of incandescence. Taking a 25 candle-power acetylene light for comparison, it equals in quality of light a 32 to 48 c. p. incandescent carbon electric lamp or a 30 to 40 c. p. Welsbach mantle.

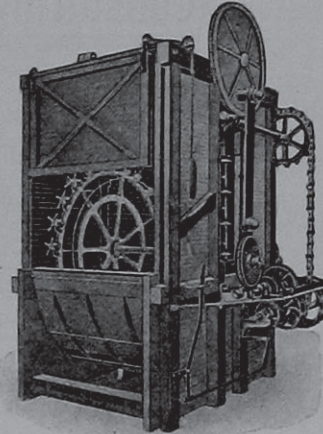
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The light from acetylene is almost pure white in color and resembles sunlight in its effect on colors, every color and shade showing up in its true tint and value in this light. This property makes acetylene very valuable for lighting many parts of the textile mill where the color of yarns or fabrics must be examined, matched, combined, etc. Moreover, acetylene gives off far less heat per candle power than does gas, although it burns with more "heat units," because less of it must be burned to get equal illumination. Acetylene gas is never used with a mantle, its natural light being so brilliant, but whenever used for illumination, shades or globes should be put around the flame and reflectors used over it, on account of this intensity of its light. Acetylene gas corrodes silver or copper exposed to it, forming explosive compounds, but does not affect brass, iron, lead or zinc. This fact should be borne in mind when using acetylene.

**Acetylene Gas.** As so much has been said about acetylene gas, a brief account of its manufacture, etc., will be given. Acetylene —  $C_2H_2$ —a gas of the so-called "marsh gas series" is formed by the reaction of carbide of calcium,  $CaC_2$ , on water, the water being

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decomposed, its hydrogen unites with the carbon of the carbide to form acetylene, the calcium uniting with the oxygen to form quick lime—CaO. On a commercial scale, lumps of calcium carbide are fed gradually into a "generator" containing water, and the gas formed is carried off by a pipe through purifiers to a gas storage tank, or, in some types of generators, it is piped directly to the burners from a tank forming part of the generator. Acetylene is usually made in generators that feed the carbide automatically to the water tank as gas is consumed, the action ceasing when no gas is being used. For a large mill using a number of burners, a gas storage tank would be better than this system, although either could be used.

With modern apparatus as now on the market, acetylene gas can be made, delivered in the mill and consumed with absolute safety. The same system of piping is used as for common gas, but a special form of burner is necessary, the bats-wing burner not being adapted to its combustion. The gas generator, storage tank, etc., should be located in an out-building some little distance from the mill, with a main supply-pipe leading underground to the larger buildings. A shut-off valve should always be placed in the gas main, well outside the mill, to shut off gas in case of fire.

The cost of an acetylene plant depends on its size, data being easily secured from numerous firms advertising generators, etc., as a specialty. Carbide of calcium costs about 3 to 4 cents a pound, less in quantities, one pound of it generating about 5 cubic feet of acetylene, making its cost about 60 cents to 80 cents a thousand cubic feet for manufacture. Comparing efficiency, it is cheaper than gas by far.

**Gasoline Gas.** While on the subject of gas manufacture by the mill owner, it may be of interest to refer to another system of private gas manufacture that is now finding wide adoption in localities away from gas or electric supply plants. This is the so-called "gasoline gas" or "carburetted air." It is made by pumping gasoline vapor into air, under pressure, in a tank, the air, enriched with its combustible vapor, being then delivered through pipes and burned the same

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as common gas. The entire apparatus, air-tank, gasoline storage tank, etc., is placed underground to avoid accidents from fire, explosion, etc. Apparatus for making gasoline gas is now made so perfect and its operation so without risk that insurance companies permit their use, under suitable regulations, without extra charge for the risk.

The cost of this gas is low, 1000 cubic feet being made from about 4½ to 5 gallons of gasoline, the best grades only being suitable. Its light from the ordinary burner is about 16 candle-power, but it is almost always used in connection with some form of mantle, then giving from 50 to 60 candle-power per burner. The same piping, etc., is used as for common gas.

Either an acetylene or a gasoline gas generating plant may be installed for supplying a mill with light at less cost than an electric plant. In isolated localities, their use may be found a paying investment, especially if the system be extended to supply the houses of mill operatives, etc., near by the mill. The subject will well repay investigation.

In closing these remarks on gas lighting, it might be added that constant and careful supervision of the pipes, burners, etc., should be given, every precaution should be observed in using gas to prevent fires and explosions and the slightest leaks must be repaired at once. Use only the best burners and mantles and watch the gas pressure if you want small gas bills.

(To be continued.)

Philadelphia has 16,000 manufacturing plants, employing 250,000 skilled laborers, each year consuming \$400,000,000 of raw material and producing \$700,000,000 of manufactures.

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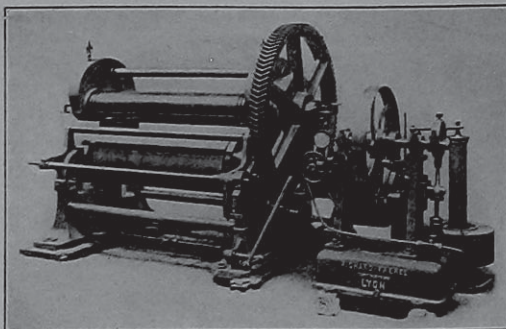
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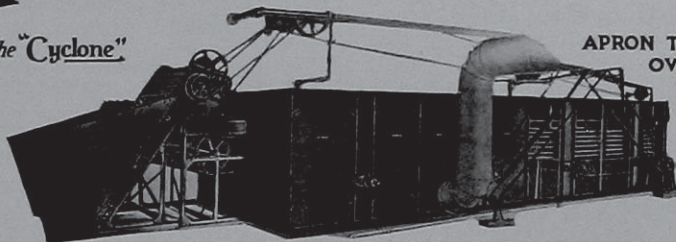




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## MILL NEWS

Philadelphia. Folwell Bros. & Co., Philadelphia's most prominent Worsted Mill, of which Michell Stead is Supt., is running to its fullest capacity; they are installing a set of French spinning machinery to be used in the manufacture of French spun yarns, of which the firm is a large consumer.

Ratification of the plans to take over the present building, and erect in its place a seven-story structure was given at the September (29th) meeting of the Manufacturers' Club. Plans for the new building will soon be under way, and it is expected before long subscriptions will be started. The proposed trip to Mexico by about one hundred leading manufacturers of Philadelphia some time before the first of December was also discussed.

Two plots of land have been conveyed by James Hulton to the Hulton Dyeing & Finishing Co. The property was sold for \$477, subject to a mortgage of \$10,000. Both plots adjoin the plant of the company.

The Elk Knitting Mills Co. has purchased the property located at the corner of Tenth and Norris streets and expects to have its plant in operation there about the first of December.

William Scholes, William Chalk, William J. Kerns, Stover G. Snook and A. Lincoln Myers will make an application for the incorporation of the Gothic Wilton Rug & Carpet Company. William Scholes has been elected president. The capital is given as \$35,000, which is all paid in. The mill will be located in Germantown.

Allentown, Pa. The Swissonia Knitting Mills Co., manufacturing ladies' cotton and lisle ribbed underwear and union suits, have completed the two-story brick addition to their mill and have installed an electric plant for motive power.

Bristol, Pa. William H. Grundy & Co., operating the Bristol Worsted Mills, have placed contracts for an addition, 200 by 90 feet, to their plant, to cost \$150,000. The new structure, when completed, will enable the company to increase its output about 60 per cent.

Conshohocken, Pa. J. Elwood Lee & Co., with mills located here, manufacturing absorbent cotton, silk elastic hosiery, surgical hosiery and bandages, have had plans completed for a new plant to be built at Spring Mill, Pa.

Crowther & Dahlstrom have leased the old MacFarland Mills, which have been idle for the past eighteen months, and will begin manufacturing. The

present production will be confined to cotton dress goods. Later they expect to add to this line men's wear and cotton worsteds, selling direct, the mills to be known as the Montgomery Worsteds Mills.

Punxsutawney, Pa. The United Textile Corporation, of Allentown, have let the contract for the erection of a silk mill here. The citizens of Punxsutawney last spring subscribed \$35,000 in preferred stock to secure the new mill, which is capitalized at \$150,000. Operations are to begin by January 1.

Shoemakersville, Pa. It is reported that J. W. Heckman will build a three-story hosiery mill here.

Capron, N. Y. Incorporation of the New Hartford Knitting Co. is planned, with a capital stock of \$22,000.

Cohoes, N. Y. The Yale Textile Co., manufacturers of knit goods, owing to rush of business, have removed their plant to larger quarters on Jackson avenue.

Lestershire, N. Y. The Corliss Towel Mills, a newly organized company, has installed the necessary machinery and is employing about 25 operatives. This number will soon be increased.

New Hartford, N. Y. The building formerly occupied by the Excelsior Canning Co. has been purchased by the Illma Knitting Co., of Utica. Exten-

(Continued on page xvi.)



JOHN C. EDWARDS      NATHAN HEARD      LOUIS C. SMITH

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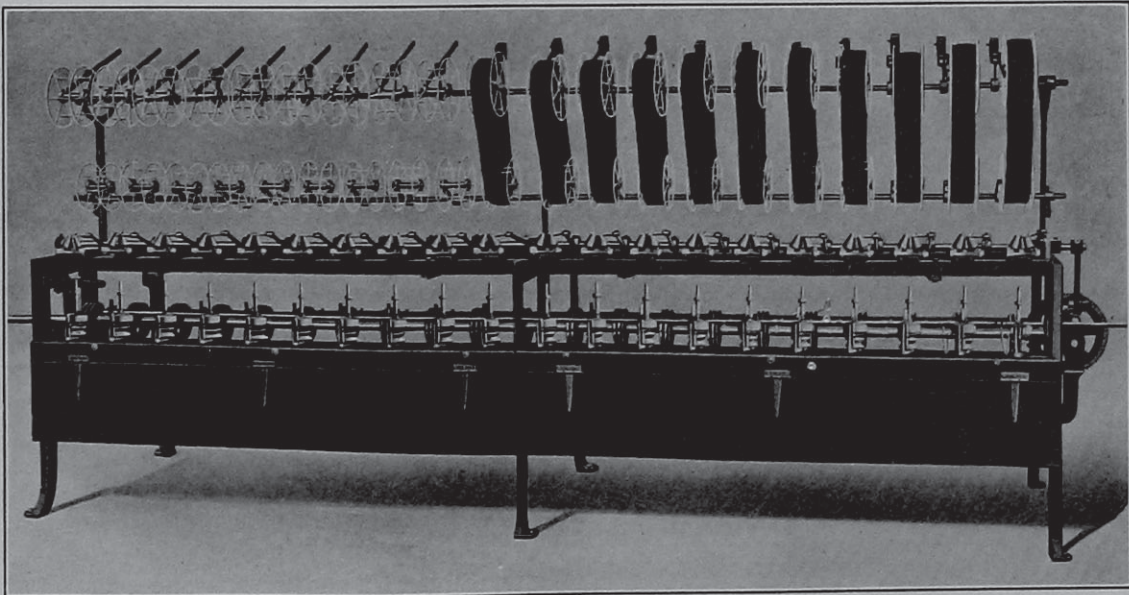
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 Silk Thread Finishing Machine  
 for Best Results—WHY?

Because the new features embodied in "Model B" do  
 away with all the difficulties to be met with in silk thread  
 finishing and make it the peer of any machine ever placed  
 on the market. Investigate and see the number of dupli-  
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 success is due to the fact that we have the best and most  
 complete system, and always honestly represent it and  
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*Vat Dyes for Cotton Dyeing—Fast to Light, Chlorine and Washing.*

Made by SOCIETY of CHEMICAL INDUSTRY, BASLE

**A. Klipstein & Co., : New York, : American Agents**

sive repairs are being made, and it is expected to be ready for occupancy December 1.

*New York Mills, N. Y.* The addition to the plant of Walcott & Campbell Spinning Co. has been completed and ten spinning frames, three twisters, three winders and twenty-six carding engines have been added.

*Theresa, N. Y.* The Theresa Silk Company has been chartered, with a capital stock of \$50,000, in shares of \$100 each.

*Utica, N. Y.* A movement for the establishment of a new yarn mill in this city was started a few weeks ago and is progressing in a way that promises to become a success, \$130,000 having thus far been subscribed.

*Waterford, N. Y.* The new addition to the Ford Mfg. Co. has been completed and is now in use as the finishing department.

*Watertown, N. Y.* The Shaughnessy Knitting Mills, of Amsterdam, have made arrangements to move the plant and business here. The concern will occupy one floor, 6,500 square feet, in the James D. Wise building, and will construct a new plant, 50 by 150 feet, as soon as possible, on land donated to the company by the Watertown Light & Power Company.

*Fall River, Mass.* The Granite Mills are installing eight new horizontal tubular boilers of 150 horsepower each.

The directors of the Davis Mills elected Frank L. Carpenter treasurer to succeed Arthur H. Mason, deceased. Mr. Carpenter was for some time in the office of the Durfee Mills, later in the Sagamor Manufacturing Company

and then for some time past head book-keeper in the Fall River Iron Works Mills.

It is rumored that M. C. D. Borden is contemplating the construction of a canal in the Quequechan River, to avoid the shortage of water supply for his mills, which has been a serious menace for several years.

*Fisherville, Mass.* Work has been started on the brick part of the four story addition to the Fisher Manufacturing Co.'s mill.

*Franklin Mass.* Walter A. Clark, who has acted as manager of the Ray Fabric Mills, Franklin, Mass., for several years, resigned October 1. He will be succeeded by William F. Ray, while John E. Barber, formerly agent of the Charles River Woolen Co.'s mill at North Bellingham will assume the position of superintendent of the fabric mill on October 1. Mr. Clark, the retiring manager, will hereafter act as treasurer of the Franklin Felt Co., a recently organized corporation. The latter concern is now constructing a large mill in this city.

*Graniteville, Mass.* The cement foundation for the new three-story brick mill that is being built for Abbot & Co., is completed, and work on the building will commence shortly. When finished it will contain all the latest improvements in machinery. The old spinning room, formerly the nail shop, has been torn down and the new mill will take its place.

*Holyoke, Mass.* The Farr Alpaca Co. has closed a deal with T. P. O'Connor by which it will take over the lease of the plant now used by Mr.

O'Connor as a laundry. The Farr Company started a building which is about half finished at the present time, and the purchase of the O'Connor lease will enable it to extend this structure, thus taking in the entire plot which it purchased from the Holyoke Water Power Co. last spring, giving when completed, work to 500 additional hands.

*Lowell, Mass.* A complete Mercerizing Plant is being installed by the Shaw Stocking Company.

*New Bedford, Mass.* Mr. Glennon goes from overseer at the Bennett Mill to become superintendent of the New Bedford Spinning Mill department, taking the place of W. L. Jenkins, who is to be transferred to the superintendency of the Bennett Mill, the place recently vacated by Samuel R. Winsper, now at the City Mill. Thomas Gilmore has been transferred from the City Mill to take the place of Mr. Glennon at the Bennett Mill.

Work on the new Holmes Mill is progressing. They will maintain in connection with their manufacturing plant, a mercerizing plant.

The name of James E. Stanton, of New York, with extensive interests in New Bedford, has been associated with the erection of a mill here. Mr. Stanton stated that he had bought land in New Bedford which was available for a mill, but that his plans were too crude to say what would be done with it.

Work has been started on an addition to No. 3 Bennett Mill by the New

(Continued on page xviii)

## WM. ALLEN SONS CO.

65 Green Street, WORCESTER, MASS.

Patent Bleaching Kiers

Dye and Bleaching Tanks

Steam Boxes, Boilers, Etc.

Plate Iron Work of Every Description



## BOOKS ON TEXTILE SUBJECTS.

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

**Wool Dyeing** (Part 2), by Gardner and Knaggs. \$3.00.

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

**The Dyeing of Cotton Fabrics**, by F. Beech. Price \$3.00.

TABLE OF CONTENTS: Fibre; Action of Alkalies, Acids and Oxidizing Agents; Bleaching; Dyeing Machinery and Manipulations; Principles and Practice of Cotton Dyeing; Dyeing Unions, Cotton-Wool, Cotton-Silk; Washing, Soap-Ing, Drying; Testing Color; Experimental Dyeing and Comparative Dye Testing.

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

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

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

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

**Wool, Cotton, Silk; Fibre to Finished Fabric**, by Posselt. Price \$7.50.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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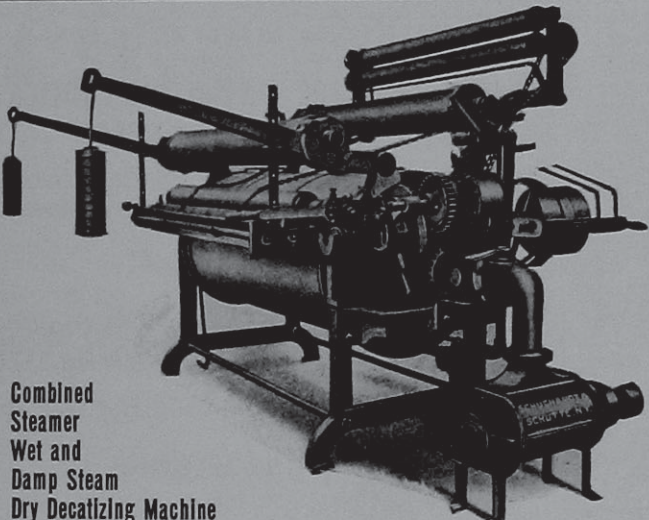
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Carbonizing, Dyeing and Mercerizing Machinery | Examination Tables (3 Styles)

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— OF —  
ANTHRACINE



COAL TAR  
PRODUCTS  
—  
ANILINES

England Cotton Yarn Company. It will involve an expenditure of over \$40,000.

*Pittsfield, Mass.* The Pontoosuc Woolen Manufacturing Co. has contracted for 25 new looms to be set up about January 1.

*Wakefield, Mass.* The Harvard Knitting Mill will dye its own yarn, a portion of two floors of the new building having been reserved for this purpose.

*Wareham, Mass.* The contract has been awarded for the New Bedford and Agawam Finishing Co.'s new cloth finishing mill, to be erected at East Wareham by John W. Knowles, Treasurer of the Page Mill, Eugene S. Graves, late Principal of the Chemistry and Dyeing Department of the New Bedford Textile School, and others. Work on the preliminary construction and excavation is rushed and it is expected that the entire plant will be in operation early next spring. The new mill will employ about 80 hands and will be capitalized at about \$200,000. The directors will be Oliver Prescott, Jr., Lloyd S. Swain, Eugene S. Graves and John W. Knowles, and Eugene S. Graves will be treasurer. The site of the new mill is on the Agawam River at East Wareham, 18 miles from New Bedford.

*Anthony, R. I.* The Coventry Company has started work on the erection of its new three-story weave shed.

*Ashton, R. I.* The Ashton Mills of the Lonsdale Co., are adding a number of new looms.

*Bridgeton, R. I.* The Bridgeton Worsted Co., are installing a new 80 horse-power steam engine, and will also add two new Rovers. They will run the plant day and night.

*Olneyville, R. I.* The National & Providence Mills of the American Woolen Co., are installing a number of new looms to replace old equipment.

*Pawtucket, R. I.* It is reported that Caderas & Ozanne, lace manufacturers of Calais, France, have leased the abandoned plant of the James Brown Machine Co. of this place, and will soon move across the ocean. They will employ about 500 operatives.

D. Goff & Sons have started the construction of their new one-story brick building, 150 by 56 feet. The new building will be used by the finishing department of the firm.

*River Point, R. I.* The Pawtucket Valley Textile Co. is to have additional machinery. To provide the room required it is proposed to do away with the present motive power and install electric motors. Two motors will be installed at once and if satisfactory the boilers and engines will be discarded and the room now used for these will be fitted up with new machinery.

*Washington, R. I.* The Livingston Worsted Co. will soon increase the capacity of its plant, about 20%, by utilizing the mill to be vacated by the Narragansett Worsted Co., now under its control. New machinery will be installed in the latter mill.

*Groton, Conn.* George C. Patton and Ralph Passmore, of New York, and Henry M. Pike, of Mystic, have incorporated the Royal Linen Mills Co., with a capital stock of \$400,000. Work on erecting the plant will be started at once.

*Hartford, Conn.* The Stonington Building Company, of Stonington, which owns the plant of the American Velvet Company, has agreed to erect an additional mill building 100 by 165 feet for the company at a cost of about \$30,000.

*Norwich, Conn.* The Westerly Silk Co. has completed the transfer of its equipment and begun manufacturing operations.


*Plainfield, Conn.* The Lawton Mill Corporation, it is rumored, has purchased land south of their present mill. It is understood that a new cotton mill, as large as the half million dollar structure just finished, will be erected.

*Putnam, Conn.* Forty new looms are to be installed by the Attawaugan Company. They will give the plant a total of about 500 looms.



We are prepared to prove that Sodium Peroxide is the best for Bleaching animal & vegetable fibres or their mixtures

is the best. Roscoe & Henshaw Chemical Co. New York.



**Rockville, Conn.** Edmund Corcoran, has purchased what is known as the Fitch Mill from Belding Bros. & Co., who bought the property a few months ago from the J. J. Regan Manufacturing Company. Mr. Corcoran is a well known woolen manufacturer and formerly resided in this city for a number of years, having been superintendent of the Hockanum Mills in the time of the late George Sykes. He left Rockville to take a position with the American Woolen Company and afterwards with the Shackamaxon Worsted Co. of Philadelphia. He is familiar with all the details of woolen and worsted manufacture, and is reported will make high grades of fabrics. He will equip the mill with modern machinery, making it an 80-loom mill, and will employ about 125 hands.

**Taftville, Conn.** The Ponemah Mills, one of our most prominent fancy cotton mills, are rushing work on their new weave shed. Brick work is well under way, concrete piers are in, and some steel beams for the floors are set.

**Dover, N. H.** A section of one of the buildings of the Cocheco Manufacturing Company, now a branch of the Pacific Mills, was wrecked by the explosion of a charge of dynamite placed in the Merrimac River to enlarge the channel. A large section of the No. 5 mill was torn away and four operatives were injured, two of them fatally.

**Manchester, N. H.** Among the largest cotton mills of New England is the Coolidge, the latest addition to the group of factories which the Amoskeag Manufacturing Company has erected in Manchester. Machinery has been started,

and its product will swell the enormous output of the Amoskeag, which already amounts to nearly 3,000,000 yards a week.

The Amoskeag is now operating one-seventieth of all the spindles turned in the world. It has 550,000 cotton spindles and 20,000 worsted spindles, and more than 18,000 looms in operation, and the new Coolidge mill will add 3,500 looms, 368 spinning frames, 192 cards and 100 fly frames and other auxiliary machinery.

The Coolidge is situated on the west bank of the Merrimac River. The main mill of the Coolidge is 704 feet in length, with a width of 104 feet and 4 inches, but it has two wings, each 104 feet long and 103 feet and 4 inches in width, and the structure is four stories in height above a basement, with the wings five stories in height.

A power house, 600 feet long and 45 feet wide, is being erected to supply the power for the operation of the machinery within the Coolidge mill. The power house will contain 32 upright boilers with a capacity of 150 horsepower each.

**Nashua, N. H.** The Wonolancet Cotton Mills are so rushed with orders, that both day and night help are employed.

**North Pownal, Vt.** Operations have been started at the North Pownal Mill of the Arnold Print Works, after an idleness of a year and a half.

**Ilchester, Md.** The Thistle Mills has incorporated with a capital stock of \$150,000 with Albert A. Blakeney, president, and Redmond C. Stewart, vice-

president-treasurer. It has acquired an established plant of 7,384 ring spindles and 326 looms.

**Terra Alta, W. Va.** The Terra Alta Woolen Mills has been incorporated, with a capital stock of \$25,000, by J. N. McClanahan and W. G. Brown, of Terra Alta; L. M. Albright, James T. Dailey and W. G. Brown, of Kingwood, W. Va.

**Little Rock, Ark.** Max Helman, Frank T. Longley, H. A. Bowman and others plan formation of company with capital stock of \$300,000 to build 20,000-spindle mill.

**Albemarle, N. C.** The Efid Mfg. Co. will build a two-story building 50 by 300 feet, and install 15,000 more spindles for manufacturing hosiery yarns.

The Wiscassett will build a 100 by 300 foot structure and install 25,000 more spindles.

**Asheville, N. C.** The Elk Mountain Mills Co., it is reported, has been sold for less than \$75,000 to Charles A. Webb. They operate 84 looms on Bed spreads.

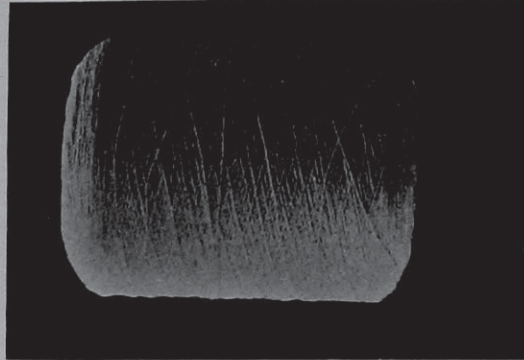
**Bessemer City, N. C.** The Mascot Cotton Mill Company has been organized with a capital stock of \$50,000 to succeed the Bessemer City Cotton Mills.

**Charlotte, N. C.** An addition to the Calvine Mill, on North Brevard Street is being erected, to accommodate 7,000 spindles. The equipment of the mill when completed, will consist of 20,000 spindles and 520 looms.

The Mecklenburg Mill will increase its equipment by 50 looms and 2,000 spindles.



## WOONSOCKET YARN GASSING MACHINES



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*Builders of Cotton and Woolen Machinery*

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Providence, R. I.

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



*Gastonia, N. C.* The new Barringer Mill has commenced operations with 3,000 spindles. 2,000 more will be installed later on.

*Lumberton, N. C.* The National Cotton Mills have installed 5,520 additional spindles, thus increasing their capacity to 11,760 spindles, for manufacturing knitting yarns.

*Raleigh, N. C.* The Martin Hosiery Mill has been enlarged and the capacity of the plant increased to 4,000 dozen pairs per week of seamless hosiery.

*Roanoke Rapids, N. C.* John and Samuel Patterson, of Winston-Salem, will build a million-dollar cotton mill here. Contract for buildings has been awarded.

*Rockingham, N. C.* The Entwistle Manufacturing Company has engaged Stuart W. Cramer, of Charlotte, as their engineer and architect in charge of planning, building and equipping the company's proposed 40,000 spindle and 1,000 loom mill.

*Smithfield, N. C.* The Ivanhoe Manufacturing Co. has begun the construction of its buildings. On completion the mill will be equipped with 5,120 spindles, 20 cards and accompanying machinery for the production of 20s to 30s hosiery yarns.

*Thomasville, N. C.* It is rumored that James W. and J. F. Cannon, of Concord, Charles G. Hill, of Winston-Salem, will locate a \$200,000 yarn mill here.

Contract for the erection of the new Jewell Cotton Mill has been awarded.

*Tryon, N. C.* The Pacolet Finishing Co. has completed its dyeing and finishing plant, having a daily capacity of 2,000 dozen pairs of hose.

*Vass, N. C.* The Vass Cotton Mills Co. has been incorporated with a capital stock of \$250,000 by A. Cameron, J. A. Keith and others.

*Weldon, N. C.* The Shaw Cotton Mills have awarded the contract to John W. Fries, to equip their new plant with the belt driven Hygrosso.

*Winston-Salem, N. C.* The Maline Knitting Mills Co. will build a bleachery with a daily capacity of 30,000 pounds of knit goods. The contract has been awarded.

*Central, S. C.* Work has been started on the addition to the Issaquena Mill. 12,000 spindles and 300 wide looms for the production of wide print cloth will be installed.

*Easley, S. C.* W. M. Hagood and Ed. H. Shanklin contemplate the erection of a third cotton mill in this place. It will be a \$200,000 mill, located near the junction of the Southern and Pickens railroads.

*Greenwood, S. C.* The capital stock of the Grendel Mills has been increased from \$350,000 to \$500,000 in order to provide funds to build another mill, which will hold 10,000 spindles and 250 looms.

*Westminster, S. C.* The Cheswell Cotton Mill Company has increased its capital stock from \$200,000 to \$300,000 and changed its title to the Oconee Mills Company.

*Columbus, Ga.* The Georgia Manufacturing Company has contracted to double its spinning capacity to 10,000 spindles.

The Columbus Manufacturing Co. is doubling its capacity from 30,000 to 65,000 spindles, and from 800 looms to 1,700.

*Athens, Ga.* The Southern Manufacturing Co. is adding a second story to one of its large mill buildings, to accommodate new machinery, enabling the company to add another line of goods to its output, which at present consists of Canton flannels and Husking cloth.

*Columbus, Ga.* An addition will be built to the Topsy Hosiery Mill, increasing the capacity of the plant one-third. The mill is now running day and night.

*Forsyth, Ga.* The Ensign Cotton Mills have been incorporated with a capital stock of \$40,000.

*Griffin, Ga.* The Cherokee Mills has erected its mill. 10,000 spindles and 300 looms on the production of cotton blankets and towels are now installed.

*Macon, Ga.* It is rumored that about October 15, the Manchester Manufacturing Co. will resume operations to its full capacity, after having been shut down about eight months.

*Tifton, Ga.* The Tifton Cotton Mills have resumed operations in full, after having been closed down since November, 1907.

*West Point, Ga.* The Hoffman Corr Manufacturing Company of Philadelphia, has consolidated with the Lang Manufacturing Company of this city, moving their entire plant to this place.

*Louisville, Ky.* The new plant of the Bradford Worsted Spinning Company, will cover 100,000 feet of floor space. It will be a three-story structure, 240 by 80 feet. The spindleage will be increased to 7,000, with 3,500 twisting spindles.

*Trenton, Tenn.* The Trenton Cotton Mills are making improvements to the amount of \$50,000 in order to double their output.

*Knoxville, Tenn.* The Knoxville Woolen Mills, Knoxville Cotton Mills, Brookside Cotton Mills and Knox Knitting Mills, are all running full time, with orders ahead.

*Fort Smith, Ark.* S. S. Lowrey and Wm. H. Talmage, both of this place, are organizing "The Great Southern Cotton Mill."

*Birmingham, Ala.* A. D. Wood will have another story added to his mill building now under construction at Columbia. It is reported the yarn mill will have a capacity of 5,000 spindles.

*New Orleans, La.* The Textile Mills Corporation, owning two cotton mills in New Orleans and one at Wesson, Miss., through President Sigmund Oldenheimer, announced that the old schedule of wages is restored, and that the three mills are running on full time.

*St. Louis, Mo.* Charles A. Schreiber, Wilbur H. Close and Felix Cornitius have incorporated the St. Louis Knitting Company with a capital stock of \$20,000.

*Munising, Mich.* A company has organized at the head of Lake Superior what is claimed will be the first plant here to manufacture linen cloth from flax grown in this country. Officials of the American Linseed Company, it is claimed, are interested in the venture.

*Belding, Mich.* Belding Bros. & Co. have decided to start a new silk mill employing 300 hands as soon as the machinery can be secured and placed.

*Marion, Ohio.* The management of the Susquehanna Silk Mills has announced that as a result of the restoration of financial confidence, the capacity of the mills will be greatly enlarged at once.

*Des Moines, Ia.* The Guaranty Hosiery Mills have been organized here and expect to have the plant ready for operations soon, with C. B. Fletcher as president.

*Rochelle, Ill.* The Vassar Swiss Underwear Co. will build an addition, 180 by 105 feet, to its present plant.

*Lawton, Okla.* Building plans have been completed for the new textile enterprise at Lawton. The main cotton factory will be two stories, 500 by 130 feet; the weaving shed, 320 by 230 feet; the lace mill, 500 by 120 feet; the bleachery and finishing building, 515 by 100 feet, and the cotton warehouse 450 by 200 feet. Electricity will be used throughout the plant. The Lawton Textile Manufacturing Co., one of the two concerns in the enterprise, capitalized at \$1,500,000, it is mentioned, will install 50,000 spindles, 1,050 looms and thirty lace curtain machines. The other, the Lawton Spinning Mill Co., capitalized at \$500,000, it is mentioned, will have 50,000 spindles and 350 looms. The new mill has selected Lawton for its mill site owing to the fact that it can use the Wichita Mountain water which it is claimed is similar to the waters used by textile mills in Switzerland.

*Portland, Ore.* The Multnomah Mohair Mills, it is reported, is to erect a weave shed equipped with saw-tooth skylights. The mill will operate 80 looms and 20,000 spindles, all electrically driven.

*Stanley, Wis.* Emil Zwisker, proprietor of the Saxony Knitting Works, of Appleton, Wis., will establish a Branch plant here. It is expected to have the mill in operation by the latter part of December.

*Oakland, Cal.* William H. Hibbard, J. W. Hibbard and L. W. Watts have incorporated as the California Silk Mills, with a capital stock of \$100,000.

*Montreal, Que.* C. B. Gordon, managing director of the Dominion Textile Company, has been elected president, succeeding the late David Yuite.

*Guadalajara, Mex.* The Atemajac Cotton Mills, recently destroyed by fire, entailing a loss of \$1,000,000, will be rebuilt.



# EXPLANATIONS FOR THE CHART OF WEAVES ON "Textile Designing Simplified."

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

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

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

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

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

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

HOW TO PUT A BACK WARP ON single cloth.

On the bottom line are given the four steps for:—

THE CONSTRUCTION OF DOUBLE CLOTH, 2 @ 1; and above the same one example, with the arrangement 1 @ 1.

THREE PLY CLOTH is shown by one example.

HOW TO BACK SINGLE CLOTH WITH ITS OWN WARP is shown by two examples.

WEAVES FOR SPECIAL FABRICS are quoted: Tricots (warp, filling and Jersey effects), Rib fabrics, Honeycombs, Imitation Gauze, Velveteen, Corduroy, Chinchillas Quilts Plush, Double-plush, Tapestry, Crape, Terry, Worsted coating stitching, Hucks, and Bedford cords

**HOW TO WORK THIS CHART OF WEAVES.**

CAPITAL LETTERS of references refer to the plain weave and its sub divisions.

SMALL LETTERS of references refer to twills and their sub-divisions.

NUMERALS of references refer to satins and their sub-divisions.

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

*Example.*—The letter of reference *e*, underneath the first broken twill indicates that the same is obtained from the 1/3 4 harness twill *e*, (third weave on the second row; in other words, letter of references below each weave of any of the various sub divisions refer always to the corresponding foundation weave.

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

*Example.*—The wide wale twill *w'*, has for its foundation the 63° twills, marked *als* respectively *ll* and *w'*, the latter two weaves have again for their foundation respectively the common twills marked *l* and *z*.

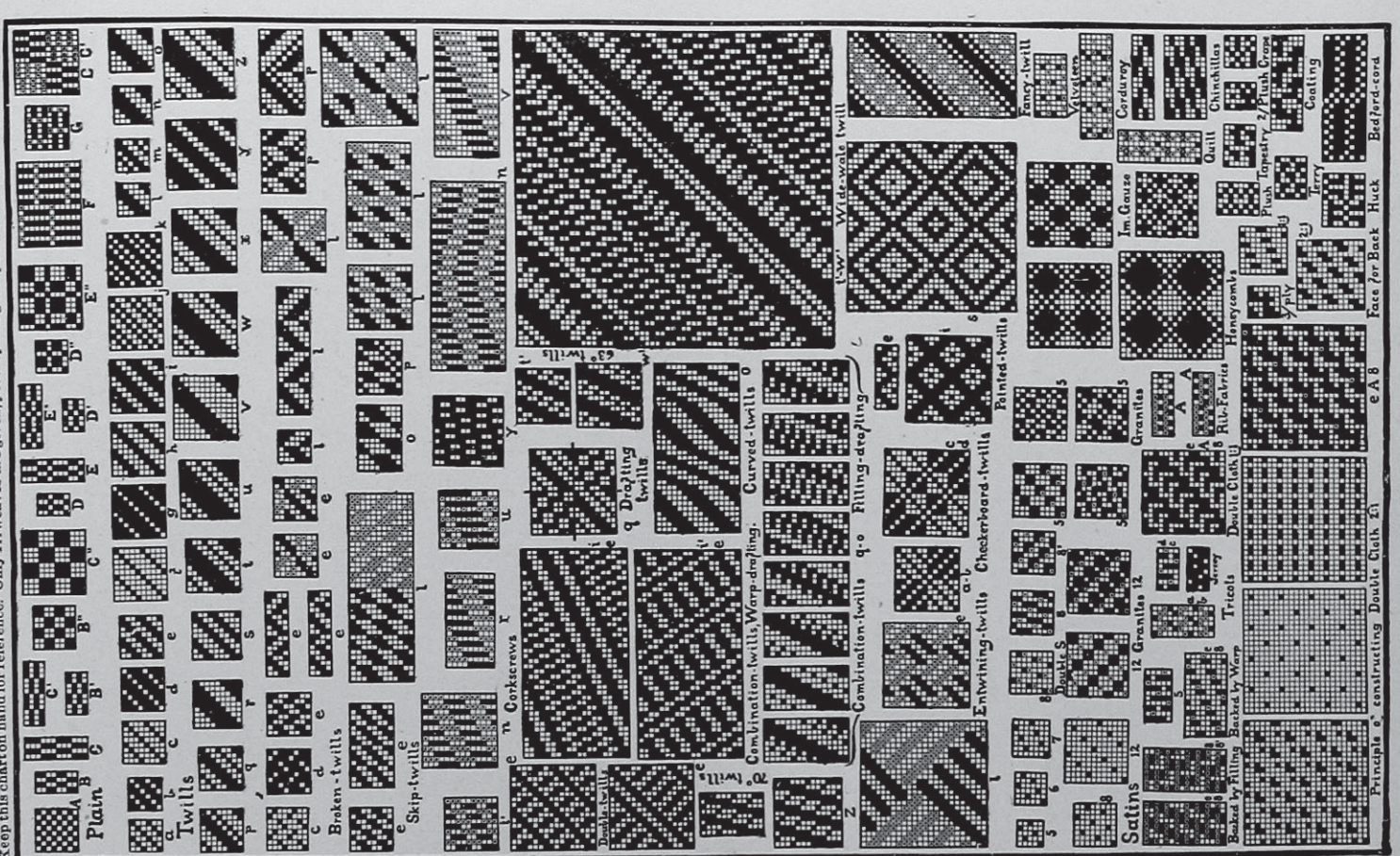
*Example.*—Granites marked 8 have for their foundation the 8-leaf satin, such as marked 12 the 12-leaf satin.

*Example.*—Backed by filling *e* 8, means the common 2/3 4-harness twill *e*, (fifth weave on second row) and the 8-leaf satin is used in the construction of this weave.

*Example.*—The complete design of double cloth, marked *e* 8 A, means that the common 2/3 4-harness twill (*e*), the common plain (A) and the 8-leaf satin (8) are used in the construction.

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

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



Principle of constructing Double Cloth 2/1