

BALDWIN'S

TEXTILE DESIGNER

PRACTICAL JOURNAL DEVOTED TO

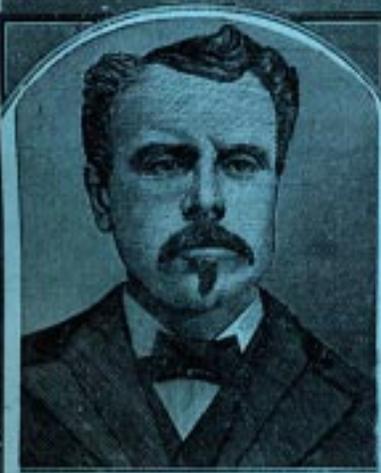
DESIGNING, WEAVING, CARDING,

SPINNING, DYEING & FINISHING

VOL. I.

TEXTILE FABRICS

NO. 9.



SEPTEMBER, 1888.

SUBSCRIPTION,
\$2.00 PER ANNUM, IN ADVANCE.
PUBLISHED MONTHLY BY
A. A. Baldwin.
BRASHER FALLS,
N. Y.

CLUBBING RATES!

We will accept of yearly subscriptions for **Baldwin's Textile Designer**, with either of the weekly papers named below at the following very low rates:

<i>The Boston Journal of Commerce,</i>	\$3 75
<i>(Regular price of the two, \$5.)</i>	
<i>The Scientific American,</i>	\$4 00
<i>(Regular price of the two, \$5.)</i>	
<i>The Merchant World,</i>	\$5 00
<i>(Regular price of the two, \$7.)</i>	

To our regular subscribers we will furnish either of the above papers at a liberal discount providing they are new subscribers for them.
Address all Orders to This Office.

WANTS!

Advertisements under this head free to all paid up yearly subscribers for help or positions.

WANTED.—A position as boss weaver and designer by a man who can fix looms and who is a good designer. Address, No. 2, care of this paper.

WANTED.—A situation as superintendent, or as weaving manager; have had charge of plain and fancy weaving 16 years, and am now assistant super. Address, No. 3, care of this paper.

WANTED.—Position as designer or boss weaver, by a man who is a good loom fixer also designer. Address, No. 5, care of this paper.

WANTED.—Situation as designer or boss weaver, by a young man who has worked on worsteds, cassimeres, chinchillas and ladies' cloakings. Good references. Address, No. 6, care of this paper.

WANTED.—Situation as boss spinner, have had many years' experience on different kinds of machines, both on coarse and fine stock. Good references. Address, John Pickford, 610 Pleasant St., Fall River, Mass.

WANTED.—Situation as boss carder, have had charge of some of the best card rooms in this country. Good reference. Address, James C. Ryan, No. Vassalboro', Me.

WANTED.—A situation as Designer by a young man who understands designing thoroughly in fancy worsteds and woollens. Total abstainer. Good references. Address, No. 7, care of this paper.

WANTED.—A situation as Carder or Carder and Spinner; 19 years' experience. W. H. Brennan, box 217, Putnam, Ct.

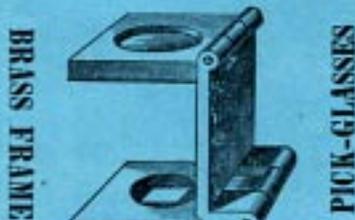
WANTED.—Situation as Dyer by a man of 10 years' experience on various classes of goods and raw materials; is open for engagement on account of mill shutting down; has good recommends from past employers. For further information address, No. 8, care of this paper.

A SUPERINTENDENT & DESIGNER of 25 years' experience as such in the leading mills of Scotland and Canada, who has a thorough practical knowledge of all classes of woollen goods, is open for engagement with the right parties. States preferred. Good salary expected. Address, No. 10, this paper.

AUSTIN C. GRAVES,
Shoddies, Waste, Flocks, Nails, Extracts,
and all kinds of
Cotton & Wool Waste, &c.
Canal & Hawk Sts., ALBANY, N. Y.

GREENE'S WORK ON FINISHING,
In stiff board cover, price \$1.00.

Any Textile Work Published,
Mailed from this office on receipt of price.



50 cts. each; address this paper.

Your Name and Address on this Pen & Pencil stamp only **25c**
Only 25c
Send us postage stamps or postal note and we will send you one by return mail, postpaid.
C. J. CONOLLY & CO.,
3 S. Water St. Rochester, N. Y.
Stencil & Stamp Works.
Boys' Printing Presses & Type a Specialty. Agts Wanted.

THE DESIGNERS' CHART!

By A. A. BALDWIN, Author of
A Treatise on Designing and Weaving Plain and Fancy Woollen Cloths.

This "Chart" illustrates the Pickout of a Fancy Design Reduced to its Lowest Terms for finding the Weave or Chain Draft, also the Cross Drawing in Draft, with Full Instructions FOR BEGINNERS TO ACCOMPLISH THE SAME.

CONTENTS:

The Process of Pattern Picking. To Find the Number of Threads in the Warp. To Find the Quantity of Yarn Required to make any Number Yards of Cloth. To Find the Amount of Yarn Required for the Filling. To Find the Number of Yards Required on a Spool—Number of Spools Required up. To Find the Number of Heddles required on Each Harness when using a Cross Draft. To Find the Required Reed. To Find the Number of Yards of a single thread in a Pound—Span is Any Number of Hens.

PRICE, ONE DOLLAR.

DESIGN PAPER & DESIGN BOOKS
OF
Various Styles and Sizes!
Supplied from this office at the lowest price. Send for illustrated catalogue of Designers' Supplies,
Address, A. A. BALDWIN,
Brasher Falls, N. Y.

TO ADVERTISERS!

For a check for \$25 we will print a ten-line advertisement in One Million issues of leading American Newspapers and complete the work within ten days. This is at the rate of only one-fifth of a cent a line, for 1,000 Circulation! The advertisements will appear in but a single issue of any paper, and consequently will be placed before One Million different newspaper purchasers; or Five Million Readers, if it is true, as is sometimes stated, that every newspaper is looked at by five persons on an average. Ten lines will accommodate about 75 words. Address with copy of Adv. and check, or send 30 cents for Book of 256 pages.
GEO. P. HOWELL & CO., 15 Spruce St., New York.

We have just issued a new edition of our Book called "Newspaper Advertising." It has 256 pages, and among its contents may be named the following Lists and Catalogues of Newspapers—
DAILY NEWSPAPERS IN NEW YORK CITY, with their Advertising Rates.
DAILY NEWSPAPERS IN CITIES HAVING MORE THAN 100,000 POPULATION, omitting all but the best.
DAILY NEWSPAPERS IN CITIES HAVING MORE THAN 25,000 POPULATION, omitting all but the best.
A SMALL LIST OF NEWSPAPERS IN WHICH TO ADVERTISE EVERY SECTION OF THE COUNTRY; being a choice selection made up with great care, guided by long experience.

ONE NEWSPAPER IN A STATE. The best one for an advertiser to use if he will use but one.
MARGAINS IN ADVERTISING IN DAILY NEWSPAPERS in many principal cities and towns, a List which offers peculiar inducements to some advertisers.

LARGEST CIRCULATIONS. A complete list of all American papers issuing regularly more than 50,000 copies.

THE BEST LIST OF LOCAL NEWSPAPERS, covering every town of over 5,000 population and every important county seat.

SELECT LIST OF LOCAL NEWSPAPERS, in which advertisements are inserted at half price.

6,472 VILLAGE NEWSPAPERS, in which advertisements are inserted for \$2.15 a line and appear in the whole lot—one-half of all the American Weeklies.

Look sent to any address for **THIRTY CENTS.**



A STANDARD WORK. HOGG'S IMPROVED SLIDE RULE,

—ALSO—
A Practical Course of Instruction with the Slide Rule in Arithmetic, Mensuration and Logarithms, Also, in the Calculations of Machinery for the Superintendent and Overseer.

Rule & Book sent free on receipt of price \$4.

Worsted, Woolen and Cotton Mill men use it and recommend it. Address,
JAMES HOGG,
AMSTERDAM, N. Y.

HOW TO BUILD A HOME!

Valuable information regarding **PLANS FOR BUILDINGS.** How Homes can be built at low cost. Instructive to people of moderate means.
JUST PUBLISHED

"Homes, in Brick and Wood!"

Beautifully Illustrated with **Thirty-Six Low-Priced Homes.** With valuable hints on Planning, Heating, Plumbing, Decorating and Furnishing.
SENT POST-PAID FOR ONE DOLLAR.
Address, HOME BUILDING ASSOCIATION,
173 Genesee Street, Utica, N. Y.

CARDING COTTON. HOW TO DO IT RIGHT.

The best Hand-Book on this subject ever written; with full details of every process, all kinds of calculations, and a solution of every possible problem. Book small enough for the pocket. Can be referred to any minute. No carder should be without it. Send by postal note, postal order or registered letter, **75 cents** to THE TEXTILE RECORD, 425 Walnut Street, Philadelphia, Penn.

A NEW WORK JUST PUBLISHED!

The Fuller's Calculating Table

—OR—
A Ready Reckoner
—FOR THE—

Fuller, and Finisher.

Compiled by W. H. DAVIS.
A handy tabulated work containing 24 pages, size 2 1/4 x 4 3/4 in., neatly bound and can be carried in the vest pocket. It is arranged for any percentage of shrinkage from 15% to 30%, and for gross weight from 20 to 60 3/4 lbs.; thus making **A PRACTICAL GUIDE** for an exact uniformity of weight in the finished goods. Price, **ONE DOLLAR.**
Address, A. A. BALDWIN,
Brasher Falls, N. Y.



VOL. I.

PUBLISHED AT
BRASHER FALLS, N. Y.

SEPTEMBER, 1888.

SUBSCRIPTION PRICE,
\$2.00 A YEAR, IN ADVANCE.

No. 9.

CHRONIC AGITATORS IN OUR MILLS.

[Written for BALDWIN'S TEXTILE DESIGNER.]

ALL proposed great reforms, either in the social, political, or manufacturing world, require the services of active and tireless supporters who are willing to work at any and all times in breaking down prejudices and opposition, and in securing adherents to the new ideas. To be successful! these supporters must be enthusiastic and aggressive, urging their claims whenever and wherever they can find listeners. At times their conduct may be considered impudent and imprudent, but if they can carry the conviction that they are conscientious, and that their work is important, they will have the respect of all right-thinking people. Chronic agitators and "regulators," however, are a curse to any mill, and should be given but little encouragement by men who wish to firmly secure their own rights, and at the same time accord to others the right which are undeniably their own.

Honest employers and honest operatives would rarely have any cause for disagreements if meddling agitators would not try to direct and control the business of both. Many of the bitter feelings which now exist in many places between the proprietors of mills and those employed by them have been caused by a few men who seem to delight in strife and trouble, and who apparently think the best way to be "square men" is to wage a constant war upon proprietors and overseers. Peace and quietness soon become monotonous to them, and sometimes must be done to make things lively.

There are very few mills, either woolen or cotton, of any size which are not afflicted with the presence of one or more agitators who are constantly seeking some real or imaginary excuse for creating trouble, either among the employes or between the employes and the employers. Trifles are taken up by them and magnified into gigantic and hideous wrongs which, they say, if allowed to exist, will enslave the whole craft in a short time. Imaginary and borrowed troubles are the causes of most of their clamor. These they will harp upon continuously if they can find either willing or unwilling listeners, every one of whom, if he does not tell them in unmistakable words exactly what he thinks of them and their arguments, they regard as converts to their theories, and they go around boasting of the influence they have over their fellow-operatives. They often carry their point and create the disturbances desired, simply because their more quiet and conservative companions humor them in their pretended grievances, in order to escape their annoying solicitations for co-operation. This mode of silencing them, however, has always proved to be

an entire failure. One success emboldens them to attempt a dozen more "reforms," and their agitations become more numerous and annoying.

Another source of the agitator's troubles is the wrong interpretation of the motives or intentions of others. Some innocent action or conversation of another employe is often construed into a full-grown conspiracy to rob them of some of their rights or privileges, and a simple inquiry or new rule of the superintendent or proprietor is immediately interpreted as being the forerunner of a series of oppressions which no one will be able to stand. Sometimes they are conscientious in their fears and fancies, and really believe what they say about them, but more often their actions and conversation are the result of a selfish desire for notoriety or their inherent inclination to create strife and discord.

A great deal of the success of any mill depends upon the harmonious relations existing between the proprietor and the help who execute his work for him. Every person in a mill should be interested in its success, because their individual welfare in a great measure depends upon it. If a mill is making money and everything is prosperous, it is much easier for the operatives to secure their full rights and gain extra privileges than it is if the mill is losing money, and all expenses must be cut down to the lowest possible point. With this plain fact before us it is evident that all operatives in the country, if they have the good of the craft at heart, should do all they consistently can in establishing and preserving kindly feelings between themselves and their employers. To do that it is not necessary for them to relinquish any of the natural or legal rights which belong to them, nor to surrender their manhood or independence. On the contrary, they should insist upon their rights; but after these have been secured they should not be continually fighting for privileges which do not belong to them, unless voluntarily given by the proprietors. Here is where the bad fruits of chronic agitators' conduct comes in. They are never satisfied with what they have, but are continually striving for more, even if justice does not sanction their actions. Especially is this true when proprietors show a disposition to accede to nearly every request or demand, or when overseers allow themselves to be controlled by those who talk loudest and longest.

The great majority of proprietors, as well as operatives, are easy enough to get along with if they are honorably treated and their just rights respected. They are anxious to get along peaceably with their employes, and are willing to grant them every reasonable request, knowing that satisfied help will perform much more and better work than will those who are dissatisfied and dis-

contented. Of course, exceptions to this rule are occasionally met with, and a proprietor uses every means in his power to make those employed by him feel their dependence and helplessness. But even in cases of this kind, the chronic agitator is a nuisance in our mills, because he keeps things at a fever heat on both sides without in any way benefiting his companions. Unreasonable proprietors are generally brought to time more quickly by quiet, united and determined remonstrance than they are by the continual grumbling of single individuals.

Operatives generally, as well as all other workers, should make a careful and thorough study of their rights and duties from the standpoint of justice, and not from the standpoint of might. These rights and duties should be clearly understood in order that they may secure all the benefits which belong to them, and at the same time not open the way to serious difficulties by going beyond their legitimate domain. In this study there is a vast field open for exploration and research, and many profitable hours may be spent in cultivating it, by the most humble members of the craft as well as by those who aspire to be leaders. When radical changes are contemplated it would be well for the employes to mentally put themselves in the place of the employers, and consider how they would feel or act in case such and such demands were made upon them, in fact, to look honestly at both sides of the question before a positive demand is made. This course might often prevent bitter regrets after the smoke of a fierce battle has cleared away, and the fallen and injured have been carried from the field, and the costs and benefits reckoned up. Every man should think for himself, and not depend upon the loud and persistent talkers for the ideas which are to influence their actions. Constant talkers, even if conscientious, are rarely thorough or deep in their knowledge of the subjects of which they have so much to say, and no one should follow them blindly if they wish to avoid embarrassing troubles. The great body of operatives should be so well posted in matters which effect their comfort and well-being that it would be impossible for a few unscrupulous or officious agitators to precipitate them into serious difficulties. If they are all well informed, they will know exactly when proprietors begin to encroach upon their rights and privileges, and will know how to organize and present a united and forcible demand for such encroachments to cease, and if this demand is not complied with they will know how to go about enforcing it.

The trouble with too many operatives is that they depend to a great extent upon others for guidance where they should have positive and intelligent opinions of their own. They do not take the trouble to gather facts and post themselves in regard to subjects upon which they are liable to be called to act at any time, and when action is demanded suddenly they find it impossible to clearly understand the situation, and they follow the man or men who can produce the most plausible arguments.

OLD DESIGNER.

THE TREATMENT OF TEASELS.

AT first it is necessary, on the arrival of a new lot, to empty the barrels without delay, and to store the teasels in some airy place. It stands to reason that if they are left for a length of time in the barrels, or stored in damp rooms, as is done sometimes, it must exert an injurious influence on them, first, because the teasels will again absorb moisture and become mouldy, and secondly, the thorn and hook are more or less forced out of shape by the greater or less pressure in the barrel.

When being mounted in the gig slats, an operation that should be performed only by skillful hands, everything depends on the teasels being pressed very tightly in place, so that they form a compact surface. On no account must there be loose or open spaces between them. They will become sufficiently loose or open spaces between them. They will become sufficiently loose of themselves by continued use, since they shrink by the continual change from wet to dry, and the gradual wear of the hook; so that, if they were put in too loosely, they are apt to drop out during the work or cleaning.

In order to facilitate the operation of mounting them in place as compact as possible, the teasels are to be wetted, before being

mounted in, to render them more docile, so that they can be more easily crowded in. Never use hot water for this purpose, but only cold or at most, luke warm. For preparing a close and at the same time a uniform set, it is also necessary to have teasels of different sizes, to fill into the empty spaces.

Their treatment during raising is of great importance for the preservation of the teasels. When a new set is being used for the first time, it is better to set the cloth in such a manner that the teasels cannot at once take too strong a hold. This is injurious, not alone to the cloth, but also to the teasels. We know of instances where, by too close a placement of the teasels against very heavy goods, the set suffered more, after having been used once, than it should if it had been employed six times under ordinary circumstances. If the goods in hand are very heavy, and must be treated with sharp teasels, it is better to use too sets than one new set; in this manner both goods and teasels can be treated with greater care.

Again teasels are greatly injured if left too long in the raising machine, that is if the same set is kept too long at work without being changed. When the teasel is wet through the thorn becomes limber, and thereafter performs little or no work. When, for instance, there are three or four pieces of goods in the machine, the teasels are rendered useless for further work after the goods have passed around twice. A prolonged raising with such teasels no longer is a raising, but a useless sweeping, and only works injury; first, because it involves a loss of time, and second, the teasel is injured more or less thereby.—*Journal of Fabrics.*

THE RESULT OF WORKING OVERTIME.

[Written for BALDWIN'S TEXTILE DESIGNER.]

THE letter from a correspondent in Manchester, N. H., published in the August number of the *TEXTILE DESIGNER*, as to the desire on the part of manufacturers in that city, "to make hay while the sun shines," brings to mind a little personal experience which I am moved to give as bearing upon this subject under consideration.

Some eight years since there was a very general boom in the woolen business. Store houses were empty and orders came to mills in an imperative way making their owners so good natured that they were voted with no dissenting votes, "jolly good fellows" such as all men stood ready to serve and found no difficulty in pleasing.

This pleasant state of affairs continued so long that many mills had to run overtime, while others, still more fortunate employed too sets of hands, running night and day. The extra expense of gas and insurance seemed as nothing. The mill where I was employed belonged to the latter class, having too sets of hands save for the finishing over which I had charge which got along with more day hands and a good deal of extra night work. The goods were wanted by the trade so badly that the common disposition to find fault to make a claim seemed lost sight of and an era of good feeling prevailed. The production of the mill even with the thought of double time, was simply wonderful, and the drayman found himself in good demand to keep the packing room clear of cases.

I was desirous to keep my room having in it as few goods as possible but was one shear short, a something which could not be purchased as Parks & Woolson, with Curtis & Marble were much behind with their orders. There seemed no alternative but to put in a good deal of extra work, which I cheerfully did for a long time.

With so many mills running night and day, no one was surprised when the market began to be a little glutted and the trade said "enough." As the mill came down to regular working hours and the excitement subsided, I found I had overtaxed myself—had no appetite, and labor however slight, seemed burdensome and in a week or two the finisher did not respond to the call of the bell, and for the first time in some fifteen years, I had a physician who looked me over somewhat carefully and said: "From some cause you seem to be sort of fagged out," and before I resumed my labors a good deal of the extra cream which I thought was mine from the money laid by had disappeared.

I have always thought of my own case as being a very favor-

able one so far as working overtime was concerned. I was no weakling, but rather a strong, hearty man, one who had worked for years with no loss of time by sickness, had no ailment save, as I used to tell my friends my appetite would seem to leave me after being at the table some half or three quarters of an hour, a something which did not seem to disturb the good wife in the least. Then again my business was not new for I had been master of it for long years and it was rarely that anything occurred which gave much strain to my mind.

Laying aside the thought of my sickness, I found before the end was arrived at there was something more to consider. I think it was the very next summer or the one following that our mill with many others, stopped for some three months (and continued so to do for several summers), when we went in late in the season each read a little notice which brought up no cheerful thought during the winter.

While this paper might admit of a good many more practical deductions, I am fearful that your space will only admit of my saying I am glad the States now and then have a kindly interest in mill operatives, and reaches out their protecting hands especially to befriend the women and the children, whom with the men, should be regarded as words looking to the States, as in one sense guardians.

FINISHER.

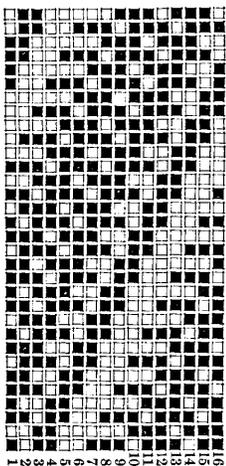
COMPOSING AND COMBINING WEAVES.

[Written for BALDWIN'S TEXTILE DESIGNER.]

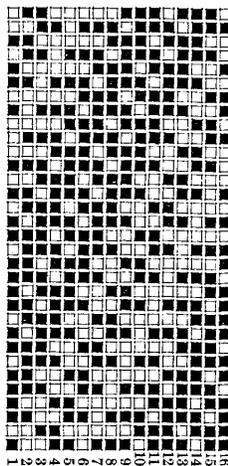
(Continued from page 106.)

TO continue this subject we ask of the reader to go back with us and review the last four weaves published in the preceding article. Your attention is first called to weave No. 3, from which we will draw off the first pick or bar of chain for the first of a new weave, then from weave No. 5, we also draw off the first pick or bar, and set it down under our former one as the second of the new weave; in this manner take a bar from each of these weaves alternately, working in each case cross ways from the left to the right and following downward in each case, and the result is weave No. 7. Again, take weave No. 3 and combine it with No. 6, by following the same principal as before, and we have as a result weave No. 8; therefore, by combining No. 3 with No. 5, then again with No. 6, we get two 16-harness weaves with 32 bars of chain, which are as follows:

WEAVE NO. 7.



WEAVE NO. 8.

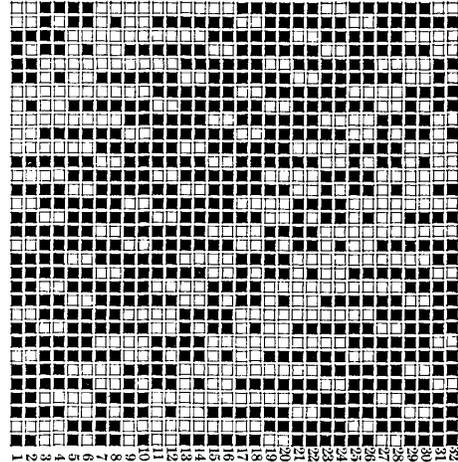


Now we can take weave No. 4, and combine it with No. 5, and again with No. 6, which would give us two more 16-harness weaves of 32 bars each, but there is no object in illustrating these latter combinations, for as before mentioned, weave No. 4, is the same as No. 3, except the position of the twill is changed; hence, if we were to use this weave in combination with weave No. 5 and 6, we must necessarily, have a reproduction of weaves 7 and 8, but standing in different positions. Therefore, it will be seen that the weaves 6 and 8, are the only real independent ones to be combined on the above principle from Nos. 3, 4, 5, and 6.

We will now take the weaving method of the first harness to weave No. 7, (reading either upward or downward) and call it

the first for a new weave, then take in the same manner the first harness to weave No. 8, for the second harness to our new weave, and continue in this manner with these two weaves alternately until both are gone through with, and the result is a 32-harness weave with 32 bars of chain which we will call No. 9, and is as follows:

WEAVE NO. 9.



If we had made the combinations previously spoken of from weave No. 4 and 5, and 4 and 6, we could then have produced several others of the 32-harness variety, but they would all run into that sameness with a difference in positions; therefore, weave No. 9 is the only independent combination that can be produced from the above on the principal followed.

RECAPITULATION.

From the original 32-harness weave we have found that it was composed of two independent 16-harness weaves, Nos. 1 and 2. No. 1 was composed from Nos. 3 and 4; No. 2 from Nos. 5 and 6. No. 7 was combined from Nos. 3 and 5; No. 8 from Nos. 3 and 6, and No. 9 from Nos. 7 and 8:—All of which are independent weaves when taken separately or in combinations, as illustrated, and are first-class weaves for fine worsteds.

AMBITION TO BE AN OVERSEER.

[Written for BALDWIN'S TEXTILE DESIGNER.]

THERE is a matter which possesses a great deal of glow and glitter for a good many aspiring young men working in the mills at the present day, and that is the ambition to become an overseer. It is a commendable trait in a man's character that he should be anxious to raise himself above his fellows and command, instead of being commanded; and where one possesses the necessary qualifications to fill such a position he would be neglecting his duty if he did not endeavor to secure it if an opportunity presented. But some only think, "what a nice thing it must be to be an overseer, and tell others, what to do, and walk around and see that they do it." To them an overseer is a king, or president, with absolute right to do or say what he pleases, whose authority must not be disputed. They do not consider that he has to bear the whole responsibility of the department over which he presides; that he has to calculate and plan the best means of handling the work that comes to him; that he has to keep track of all work that is being done, so that he may, whenever called upon to do so, be able to state just how far it is toward completion, or how long a time it will be before it is completed; that if anything goes wrong it is he who is called to account by the employer for the wrong-doing. They do not think that often when they are enjoying their rest after the day's work is done, the overseer is wrestling with some unsolved problem that has cropped up in the course of the day's work, and which he has to settle before the following morning. And not only this, but he has to govern his temper with an iron will to keep the peace in his department with all the various characters to be found in every mill; he has to be the medium between the employer and the employe, looking to the interest of both, not being the tool of either; he has to be prepared for any emergency

and ready to act when the emergency arises. All the material of his department is under his especial care, and he is accountable for its preservation and proper use; and a thousand-and-one other matters are attached to and dependent upon the position of an overseer which go far to take away the glamor which such a position may appear to have in the sight of him who is not an overseer, but thinks he would like to be one. To the overseer himself the position does not always seem a golden one, and many a time he would be glad to exchange his lot for that of the workman who envies him.

When all these various matters are rightly thought out and considered, in nine cases out of ten the would-be aspirant will surely exclaim, "Well, I can see that the position of an overseer is not an enviable one," and "All is not gold that glitters."

NEMO.

WOOLEN SPINNING.

I have often heard spinners as well as others in the woolen mill remark that on heavy yarns there was not so much need of being particular as to the size of roping or yarn as there was on finer yarns. If making 2-run yarn they seemed to think any thing from $1\frac{3}{4}$ to $2\frac{1}{4}$ runs would pass all right and never be noticed. Now I claim the heavier the yarn you are spinning the more particular you should be in sizing it. I have spun all sizes from 1 to 10 runs, and I find that on heavy yarn $\frac{1}{8}$ or $\frac{1}{4}$ run variation is noticed quicker than on fine yarn, and it looks plain enough to me that it should be so. I have seen a carder that pretended to know his business make a change from fine to heavy yarn, and at first he would make the roping so the spinner could get his yarn where he wanted it, but he seemed to think there was no need sizing it very often, and would think no more about it until he heard from the spinner that it was too heavy and he could not get his yarn within $\frac{1}{4}$ run of where it belonged. The carder would say he did not think $\frac{1}{4}$ run would make any difference on that heavy work. Now do not think I expect a card to run forever without a variation in the roping, but if the carder sizes his roping once or twice a day there is not much chance for it to vary a great deal, if the spinner does his part and looks after what he is spinning; but if he is of the same opinion of the carder,—that $\frac{1}{4}$ run will not make any difference,—then let him look out for trouble when the goods are finished, and nine times out of ten, the spinner must bear the blame. Now, for example, say I am making a filling for a warp reeded 62 inches wide, 40 picks to the inch, 5-run filling. I find there would be about 5 ounces of filling to the yard. Now if that filling should vary from 5 to $4\frac{3}{4}$ runs, there would be a difference of a fraction over 2-10 ounce per yard, and if the cut is 40 yards long it would be only $\frac{1}{2}$ pound heavy, and the goods would probably pass in most mills all right. Now we will take the same warp and same number of picks, and spin some filling 2 runs. I find that filling weighs 12 4-10 ounces per yard, if that filling should vary to $1\frac{3}{4}$ runs it will weigh 14 1-10 ounces per yard, or a difference of 1 7-10 ounces per yard; and a cut of 40 yards will weigh $4\frac{1}{4}$ pounds heavy, and the spinner will hear very quick he is spinning his filling heavy.

There is another thing that seems strange to some spinners. If they are spinning fine yarn, say 5 runs, $\frac{1}{2}$ hole draught will make a change of $\frac{1}{4}$ run, and on 2 runs it will take two holes to make the same change. I will try and explain why it is so. If you are spinning 10-run yarn with $\frac{1}{2}$ draught, and you should give it full draught, you will have 5-run yarn, and you have made a change of 5 runs.

Now take 2 runs with $\frac{1}{2}$ draught: give it full draught and you have 1-run yarn and have changed it the same number of holes, but only have made a change of 1 run.

In spinning heavy yarn I have my roping made as heavy as will spin well; and in doing that you can get the same strength of yarn with less twist than you would need with $\frac{2}{3}$ or $\frac{3}{4}$ draught and turn off more pounds of better yarn per day. Some spinners want all the draught they can get—they think it makes the work run better; but it makes a tender, uneven thread, every time. There are, however, some wools that require a long draught and cannot be spun to any advantage without it. I do not believe in over drawing, for yarn can be drawn to such an extent as to cause

twists or fine places. On fine work all yarn of the same kind should have the same number turns twist, and the only way I know to get this on operators is with the indicator. Run the fly wheel of all the operators which are making the same kind of work the same number of revolutions. I think that is a better way than putting the indicator on the spindle, which I have seen done. If I have made any statements that are not right, I would like to be corrected.—SPINNER.—*Textile Mfg. World.*

A FRIEND IN NEED IS A FRIEND INDEED.

[Written for BALDWIN'S TEXTILE DESIGNER.]

I hardly know how to express my feelings for the valuable information extended me by "OLD DESIGNER," he has opened up a bright and cheerful road for me. Now as long as "OLD DESIGNER" takes an interest that is really for my own benefit, it behoves me to take advantage of this valuable privilege and express myself just as I think and feel in the matter.

In this letter I wish to ask my instructive friend this question and that is this: Supposing I am to make a sample of cassimere, we will say light weight, common four-harness twill, to weigh a certain weight finished, the warp we will spin 4 runs, the filling $4\frac{1}{2}$ runs, would you divide the warp and filling this way—take just one-half for each? You can see what I am after is, I wish to find out which you would give the preference. I have been told goods made in this way wear the best.

I have seen goods made where the filling would vary from 1 to $1\frac{1}{2}$ run, and the very same goods made by another mill where the variation would not be over $\frac{1}{2}$ run, and yet both goods were well made; so you can see what I want is to find out which way is best to establish—one of them must be the preferable. I am after a foundation to commence to build upon, and if "OLD DESIGNER" will only have a little patience with me, as I ask from time to time the questions I will ask, I will soon get into the right boat that I may sail along with.

I shall from time to time touch upon the principle things that will come up in the course of my studies. I wish to say, however, that I know of many designers who could lend a helping-hand, and if so, we then could see whose way and methods were the best to accept.

X.

THE FINISHING ROOM,—PROCESS OF OPERATIONS.

[Written for BALDWIN'S TEXTILE DESIGNER.]

FULLING.

THE purpose of fulling is, to give the fabric more stability, by felting together the threads of which the fabric is composed. Felting, although not entirely confined to wool, is the essential property of wool and in this quality rests its chief usefulness. The process of fulling of to day is something totally different from what it used to be in the Ante-Bellum days of wool manufacturing. In fact it is not so much relied upon to produce a good piece of cloth as it used to be and long fulling is almost a thing of the past, especially on fancy cassimeres. Besides the felting together of the threads, a certain shrinkage is produced by felting which is relied upon to give the cloth the proper width as well as firmness. The first condition here, as in all other branches, for a satisfactory result is to know definitely what that result is to be and according to this we regulate our proceedings. We have to consider the finish, the weight required, etc., and the first thing we do is to find the weight of the goods before fulling and refer to the ticket for this. It is well, and one might say necessary, to keep a correct record at all stages of finishing and I will, later on, consider this matter more closely. We find in most instances that the weight is more than the weight required and this leads to the conclusion that there is a certain loss in the process of finishing and one of our points is to estimate this loss as near as possible. The loss sustained in finishing is due to several causes and these must be taken into consideration: First, the wear sustained by friction on the several machines, through and over which the cloth has to pass in the finishing process. Then comes the oil, surplus dye stuff, and other foreign matter contained in the yarn and which must and will be removed. While the loss through the machines is easily estimated

by actual trial the loss in weight by reason of the removal of oil and foreign matter contained in the yarn becomes more complicated and depends in a great measure on the quality of the stock. Of course a good deal of trying and experimenting has to be resorted to, if previous experience is lacking but with the distribution of knowledge by means of trade papers such as the DESIGNER, this is in a measure, easily overcome. Information on any subject pertaining to the manufacture of wool, may be had for the asking, and if we, therefore, lack the previous experience necessary, someone will certainly be glad to impart it from a store laid by for just such occasions. In order to illustrate, we will take a piece and see what our work is likely to be. The piece we take weighs, say 19 oz. off the loom, weight required, 16 oz. Now let us suppose the loss to be 20 %, which on medium grade goods is about the average, and we find that our goods will weigh only 15.2 oz. when finished being .8 oz. to make up by shrinkage. To find this, we multiply the given weight which is 19 oz., by the per cent. of loss which is 20, expressed decimally in the following manner: $19 \times .20 = 3.80$. Subtracting this from the given weight, would give us 15.20 oz. as the finished weight. Or we may figure as follows: Deducting the 20 %, we have 80 % left, and we multiply as before. Thus: $19 \times .80 = 15.20$.

We now proceed to find the shrinkage required to the yard. This we find as follows: $16 : 36 \times 15.20 = 34.20$. So we have to shrink 36 inches until they measure only 34.2, or in other words, 1.8 inches per yard. The two operations may be combined in one as follows: $100 \times 16 : 19 \times 80 \times 36 = 34.2$.

Too much importance cannot be attached to the figuring part of the process and the more attention there is paid to it, the better the average result will be. For this reason I am preparing a series of tables, which, when completed, will cover the whole ground, and of which I will give a few specimens, both now and later on, as they are required.

By these tables you find that the estimated per cent. of loss is given from 10 to 25 %, which will, I think, meet all requirements. We will now consider the different elements of fulling and also how to supply them. The elements required in fulling are pressure, moisture, and heat. The first is supplied by the machine, or mill, as it is called, through the medium of either the weight of the rolls or by means of elliptic springs attached to those rolls. The second element is supplied by soap, and the last generates itself in the operation. The Fulling Mill is well enough known to need further explanation, we will therefore consider the second element, moisture, supplied by soap. Equal in importance with proper calculations in the proper making of soap.

PER CENT. OF LOSS.

oz. WEIGHT FROM LOOM.	10 12½ 15 17½ 20 22½ 25					10 12½ 15 17½ 20 22½ 25					10 12½ 15 17½ 20 22½ 25										
	Inches to be shrunk to Finish 16 oz.					Inches to be shrunk to Finish 17 oz.					Inches to be shrunk to Finish 18 oz.										
12.	11.7	12.4	13.	13.7	14.4	11.3	12.	12.6	13.3	14.	9.	9.8	10.5	11.3	12.	12.8	13.5				
12.5	10.7	11.4	12.	12.8	13.5	10.3	11.	11.7	12.4	13.1	8.1	8.9	9.7	10.5	11.2	12.	12.7				
13.	9.7	10.4	11.	11.9	12.6	13.3	9.3	10.	10.8	11.5	12.3	13.	13.8	7.2	8.	8.8	9.6	10.4	11.2	12.	
13.5	8.7	9.4	10.	10.9	11.7	12.5	8.3	9.1	9.9	10.7	11.4	12.3	12.9	6.3	7.1	8.	8.8	9.6	10.5	11.3	
14.	7.7	8.4	9.	10.	10.8	11.6	12.4	7.3	8.2	9.	9.8	10.6	11.6	12.	5.4	6.2	7.1	8.	8.8	9.7	10.5
14.5	6.7	7.4	8.1	9.	9.9	10.7	11.5	6.4	7.3	8.1	8.9	9.7	10.7	11.4	4.5	5.3	6.3	7.1	8.	8.9	9.8
15.	5.6	6.5	7.2	8.	9.	9.8	10.7	5.5	6.4	7.2	8.	8.9	9.8	10.7	3.6	4.4	5.4	6.3	7.4	8.1	9.
15.5	4.6	5.5	6.3	7.	8.1	8.9	9.8	4.5	5.5	6.3	7.1	8.	8.9	9.8	2.7	3.5	4.6	5.5	6.4	7.3	8.3
16.	3.6	4.5	5.4	6.	7.2	8.	9.	3.6	4.5	5.4	6.3	7.2	8.	9.	1.8	2.7	3.7	4.6	5.6	6.5	7.5
16.5	2.6	3.5	4.4	5.3	6.3	7.	8.2	2.6	3.6	4.5	5.4	6.6	7.3	8.2	0.9	1.8	2.9	3.8	4.8	5.8	6.8
17.	1.6	2.5	3.5	4.5	5.4	6.	7.3	1.7	2.7	3.6	4.6	5.9	6.5	7.4	0.9	1.8	2.9	3.8	4.8	5.8	6.8
17.5	0.6	1.5	2.5	3.5	4.5	5.3	6.5	0.8	1.7	2.7	3.7	4.8	5.7	6.6	1.1	2.1	3.1	4.1	5.1	6.1	7.1
18.		0.5	1.6	2.6	3.6	4.6	5.6		0.8	1.8	2.8	3.8	4.8	5.8	0.3	1.3	2.3	3.3	4.3	5.3	6.3
18.5			0.7	1.8	2.7	3.7	4.8			0.9	1.9	2.9	3.9	4.9			1.1	2.2	3.2	4.2	5.3
19.				1.	1.8	2.9	4.				1.	2.	3.	4.			0.3	1.3	2.4	3.4	4.5
19.5					0.9	1.9	3.					1.4	2.2	3.3				1.1	2.2	3.2	4.2
20.						1.	2.					0.7	1.3	2.6				0.3	1.3	2.4	3.4
20.5							1.3						0.6	1.8					0.5	1.6	2.6
21.							0.6							1.						0.8	1.9
21.5																					1.1
22.																					0.4
22.5																					1.1
23.																					1.5
23.5																					0.8

REAUMUR.

WHICH IS THE BEST LUBRICANT FOR WOOL?

(Continued from page 104.)

IN speaking of manufactured oils in contradistinction to pure extracts, the writer has refrained from naming any particular brand or kind, for the following reasons. First, because in the interest of economy, they must be used, the law of supply and demand compelling their employment. Secondly, comparative purity, expert manipulation, and intelligent combination redeem many of them from condemnation. Thirdly, these views being the result of practical workings in the card-room, the writer might unwittingly indorse an inferior article, because those of a better quality had never been brought to his notice.

Let me amplify this last hint a little. If those who desire to furnish supplies to the mills would urge their claims for superiority, with plausible reasons, in such publications as are of interest to the overseers, the trial and recognition of meritorious articles would follow much more quickly than from the method now too frequently followed, of so placing advertisements that they only reach the retail trade or the factory office, or worse yet, trusting to business cards and circulars, the former to be consigned to the oblivion of the card-rack and the latter to the waste basket. People will read advertisements that are within lines to their own interest, and the persistent importunity of their monthly or weekly appearance provokes attention, and very often an opportune notice

of them by one who, at the moment, requires just that thing results in long patronage to the advertiser. No one is more capable of judging of the probable merits of a machine or material, for use in his own department, than a thorough master workman, and no one more likely to give an unbiased decision, because it is for his interest to have the best. Furthermore, he always has more or less to say in regard to what he will or will not use, and not infrequently the whole matter of supplies is left entirely to him. Having occupied so much space in amplifying the hint, perhaps it is no more than fair that I should give the deduction, which is good carders read the *Record*. *Ergo*, if refiners or manufacturers of oil have a good thing for wool, let them proclaim it in the *Record*. This deduction answers my present purpose. Its application to other good things is self evident.

My attention has just been drawn to an advertiser who evidently sees this matter in the right light, judging from the fact of his introducing his wares into a discussion about wool lubricants in another publication. After stating frankly that he is an interested party, and why he enters an especial plea in favor of elaine oil, briefly stating that the other disputants agreed that, "for carding and spinning an oil must not gum, that it must be diffusive, thoroughly penetrating into the fibres, and yet pught to have some viscosity. The latter terms are antagonistic, as what an oil gains in diffusiveness it naturally loses in viscosity. Yet if there is a

mean, it seems to me that elaine will come nearer to it than any other that I know of, as it has much of the penetrating property of a mineral oil, combined with the body of an animal oil." He then proceeds to give some theoretical reasons why elaine should not gum nor be liable to spontaneous combustion, capping the climax by asserting that only such oils as gum can have any effect on the fibre whatever, and in closing says, "I could not forbear to make a plain statement of what I know of it. As this last quotation gives the exact condition of my mind at the present writing, it must be my excuse for what follows.

Some years ago another writer made an equally strong claim in its favor, but coupled it with a significant reservation. After enumerating the desirable qualities for a good lubricant, he said, "Oleine, or so called elaine, if an honest article could be obtained, would fill these conditions better than any other." The "honest article" may never have come to my notice, but such of it as has been my fortune to use has given me a very decided opinion that if "mean" can be applied to it at all, it is a mean having a meaner meaning than the writer first quoted meant. I have found it very unreliable. Sometimes one thing and sometimes another and sometimes several things in the same barrel. Some of it could be dipped out with an ordinary dipper, some with a sieve, and more of it with a paddle, and in these two last conditions the gum was there in predominating quantities. I have found it too materialized a body when affected by cold, and too etherealized a spirit when subjected to heat, in its thick state, *nasty*, and in its thin, *volatile*; nor have the results from its application been any more satisfactory than its appearance. Taken at its best, when its "viscosity" was not pronounced enough to prevent its being evenly applied, and its "diffusive" qualities not so great as to cause it to run away altogether, it cannot be depended upon to stay, except under the most favorable circumstances. It either evaporates or penetrates the fibre so thoroughly as to leave no visible traces or lubricating properties on the fibre. If it has no injurious effect on the fibre, it certainly has on the working of the stock after it has thus apparently flown with the winds. The wool becomes drier and harsher, flies more from the card, both above and below, is harder to condense, and more difficult to spin, than if it had not been oiled at all. The same thing can, with equal truth, be said of many combinations containing a large percentage of mineral oils. It may be the effect of their "thoroughly penetrating the fibre," but I, for one, do not believe in either thorough penetration nor saturation, but claim that surface lubrication is all that is required and of that simply enough to avoid friction and the consequent breakage and wear of the fibres.

Water or moisture is much more effective for softening and giving pliability to wool fibres than oil, but, of itself, is not sufficiently lubricating. Hence a composition of oil and water that will mix thoroughly, and remain so until it is applied, is better in every respect for many kinds of wool stock than clear oil of any kind.

Many of the expedients for both moistening and lubricating wool have doubtless failed for the want of such a mixture, and many more because the wool already contained an excess of moisture when the oil or composition was applied.

Wool from the extractor, after it has been through the scouring and rinsing processes, is in no condition to resist the strain to which it is subjected in picking and carding, because the fibre has been softened too much, nor will it take the oil, because it is still thoroughly saturated with water. To apply compositions by immersing dry wool in them will lead to like results, for the wool will take the water to the exclusion of the oil. There is as much in the condition of the wool, the manner of applying, and in the making of and caring for the composition as there is in the ingredients of which it is composed. Of all these I will speak in my next paper.—*Industrial Record.*

(To be continued.)

If you want a first-class trade journal, one full of practical matter, subscribe for BALDWIN'S TEXTILE DESIGNER. It is only \$2 a year, and is not this number worth that to the mill man? Back numbers can be supplied to all in want of them. New subscribers should name the month they wish to commence with.

BACK LASH FROM PICKING MOTION IN LOOMS.

[Written for BALDWIN'S TEXTILE DESIGNER.]

AS back lash in a main shaft is of that character which causes so much trouble to loom fixers and all others who are concerned in working of looms. I wish to say a few words on the subject, so that its importance may be more fully understood. Back lash is an irregular motion that occurs by a long, slack or slim belt, and also with a long line of shafting that will spring if it is not sufficiently strong, or if the bolts and keys of the couplings are not rightly fitted, and as there is so much strain to the picking motion in driving the shuttle too and fro, will make the belt flap and cause an irregular rotation of the shaft, or will make the shaft spring. Hence, should there be a number of looms on the end of the driving shaft picking at the same time, it will make the shaft spring backward, and lose the force of the shuttle at that instant when it is mostly needed to drive it across to keep the loom from slanning. Should there be 1 or 2 looms near those already mentioned, and they start to pick just a little later, the force of the shuttle is increased at that instant by the shaft springing forward to its natural place, therefore it is the picking motion causing the back lash in the driving shaft and making the looms run so as to make the belts squeak, caused by the irregular travel of the shuttles, and making picking sticks catch, thereby straining bolts, studs, straps, etc., and often result in the breaking of castings and other parts of the loom, which involves expense, and loss of time in working the loom.

There is also back lash in looms which acts entirely different from that in the main shaft, and is more destructive to gears. Back lash in this case is also caused by the picking motion, as that of the main shaft, and the new Crompton Loom is more troublesome than his old-style loom, for this reason: It is well known that the old style box-motion looms are provided with sweep arms that are of one piece, which is a small, light casting but strong enough to do its work. The Knowles' are provided with the same, but the new Crompton is provided with some that comprise several pieces. Some of those parts are large and heavy in comparison to those on the old style, or of Knowles' and yet often break, wear and become loose.

As a picking motion has so much hard work to do, knocking the shuttle from one side of the loom to the other at the rate of 70 to 100-picks per minute, it should be constructed in the most simple and durable way, whereas the Knowles Looms are provided with sweep arms which are small, simple castings, the same as the old-style Crompton. It can be readily understood that a stronger, easier and more reliable picking can be obtained, and if the gears are not properly mashed or if the teeth are worn thin, and the loom fixer is in the habit of running his looms with tight binders against the shuttles, which will cause them to start hard, and at the same time having the picker shoes so low that the picking rolls will hit pretty well up, causing a hard, quick start of the shuttles. These faults, with other similar ones, produce back lash in every case, and often break gears and other parts of the loom. But these faults can be overcome by the loom fixer, if he understands his business.

Now we will go back and overgo the working of the 1883 style Crompton's make. This loom is provided with sweep arms which comprise several pieces, and are in the form of a clutch or hook motion. If they have the hook motion we have so much heft and so many parts to contend with, that it annoys the the fixer more than all the other parts of the loom, and if they have the clutch motion, then we have more heft to work against, for when they applied this latter device, some of the pieces were dispensed with, by adding another evil to its number. In applying more weight to the previous one which produces a hard, heavy and unreliable picking, in either case they are a great disadvantage over the old style for various reasons. I will try and analyze the workings of this class of sweep arms. In the first place, the shuttle is knocked from one side of the loom to the other, and is held fast by the shuttle binder in the ordinary way, and of course, will require the usual amount of power, and as there is so many pieces of the said sweep arms weighing four or five times as heavy again as the old ones,

it will take more power to start them with an addition of all this weight which will necessarily require a stronger or more spring to draw the picker sticks back in time, and yet there must be two additional springs to each loom for the purpose of turning the picker shaft with shoes to its working position when the weaver is finding the right pick. All this addition requires its proportion of power. When we take those disadvantages, with many others into consideration, we can clearly understand what causes the back lash in the driving shaft. As I have explained here-to-fore, that back lash in the shaft is an irregular motion so it will have the same irregular travel of the shuttle, and when the shuttle goes faster than it should it is apt to bound back, loosening the filling in the shed and making a rough piece of cloth, and by the filling being loose, will give a chance for another thread to catch it and make what is called filling drawing-in on the side. By the shuttles entering with such force as to bound back will often make the filling knock off and make waste, and by the shuttles not going in the boxes as they should may result in breaking a sweep arm, stud, picking stick, strap, bolt, etc., and often causing a shuttle smash, leaving an imperfect place in the goods, and much loss of time to the weaver.

After showing up the bad working of those sweep arms, I will close by saying, the best way to overcome the difficulty is by throwing off the troublesome sweep arms, and apply the kind that are on the old style Crompton loom. I should like to hear from others on the subject of back lash.

C. SCHILLING.

MECHANICAL GROWTH IN AMERICA.

NO other country that has ever existed has so rapidly developed, mechanically, as America. Neither has any other country ever developed a greater number or a more skillful race of mechanics. This fact is becoming more evident with each succeeding year. Foreign goods are less in demand than formerly, and we are looking for the time, which cannot, in the nature of things, be long in coming, when this demand will cease to exist at all.

Already those countries which could only be induced to patronize England, are giving more consideration to American goods and our exports are rapidly increasing.

The claim of England to superior workmanship is coming to be looked upon as a thing of the past, and few will be found so blind or prejudiced as to allow such a claim to influence them.

There is not a particle of reason for supposing or arguing that America cannot or has not produced as good workmen, and turned out as good work as any other country, and there is every reason to believe that she can and has.

There is not another country more prolific of great inventors, or inventions tending to revolutionize and advance industry, science and art. Our products are found in every nation and civilized country in the world.

But, yet there are, and we are sorry to admit it, not a few things connected with our growth, mechanically, which are not to our credit. This spirit of Americanism, which is a spirit of push and energy, has been tending to a too rapid development of construction. The demands of the country, so rapid in its growth, has given too little time in which to mature mechanical genius. The tendency to rush, has caused men to neglect deliberation, and as a consequence, we have a poor system of training, and have placed no barriers in the way of imposters, who have worked us harm.

This we believe to be a point in our fortifications which should be strengthened by a more careful system of training. Apprenticeship is becoming an unknown quantity in this country, and as an effect we are employing and encouraging a class of unskilled labor most decidedly detrimental to our good name, and the future patronage of our industries.

There is no country where so little attention is given to learning a trade as here; no country where unskilled labor has a better chance to crowd out and lower the price of skilled workmen. Specialists are more numerous than generalists.

Those men who have become thorough masters of the art and science cannot be outdone by those of any other country. There is to-day a growing demand for the more skilled workmen, which

is a good indication that the above fact is appreciated and a move is being made in the right direction.

With this remedy for poor workmen and their products, we may look for superior results. There is no country with more natural advantages, more promising resources, and better facilities than ours, and we are looking for the time when she shall stand unchallenged, the greatest and most widely known mechanical nation in the world.—*The Practical Mechanic.*

MINERAL WOOL.

MINERAL wool is the name of an artificial product now used for a great variety of purposes, chiefly, however, as a non-conductor for covering steam surfaces of whatever character. It is largely used for this, and the underground steam pipes of the New York Steam Company are insulated with it.

Mineral wool is made by converting vitreous substances into a fibrous state. The slag of blast furnaces affords a large supply of material suitable for this purpose. The product thus obtained is known as slag wool. For the reason that slag is seldom free from compounds of sulphur, which are objectionable to the fibre, a cinder is prepared from which is made rock wool. The products comprise the two kinds of mineral wool; they are not to be distinguished from it, but from each other.

The resemblance of the fibres to those of wool and cotton has given the names of mineral wool and silicate cotton to the material, but the similarity in looks is as far as the comparison can be followed. The hollow and jointed structure of the organic fibre, which gives it flexibility and capillary properties, is wanting in the mineral fibre. The latter is simply finely-spun glass of irregular thickness, without elasticity or any such appendages as spicules which would be necessary for weaving purposes. The rough surfaces and markings of the fibre can only be detected under a strong magnifying glass.

Aside from its uses as covering for hot surfaces it is also largely employed for buildings. A filling of mineral wool on the ground floor, say two inches thick, protects against the dampness of cellar; in the outside walls, from foundation to peak, between the studding, it will prevent the radiation of the warmth of interior and will destroy the force of winds, which penetrate and cause draughts; in the roof it will retain the heat which rises through stair-wells, bringing about regularity of temperature in cold weather; the upper rooms will not receive the heat of the summer sun and store it up for the occupants during the night, but remain as cool as those on the floor below; the water fixtures in bath-rooms, closets, and pantries, will not be exposed to extremes of heat and cold.

Analysis of mineral wool shows it to be a silicate of magnesia, lime, alumina, potash, and soda. The slag wool also contains some sulphur compounds. There is nothing organic in the material to decay or to furnish food and comfort to insects and vermin; on the other hand, the fine fibres of glass are irritating to anything which attempts to burrow in them. New houses lined with mineral wool will not become infested with animal life, and old walls may be ridden of their tenants by the introduction of it.

Mineral wool is largely used for car linings, in which service it reduces the noise of travel greatly. Aside from those mentioned, it can be applied generally in the arts for all purposes where a non-conductor or a shield is required, and the experience of several years show that it is both serviceable and cheap.—*The Engineer.*

THE process of sheep shearing by machinery is now performed in Australia by an ingenious kind of device, the results, as represented, being very satisfactory. The apparatus in question is a very simple one, being made on the same principle as the cutter of a mower or reaper, and the knives are worked by means of rods within the handles, these in their turn being moved by a core within a long flexible tube, which is kept in a rotary shaft, the wheels driven by a stationary engine. The comb is in the form of a segment of a circle, about three inches in diameter, with 11 conical-shaped teeth. Each machine is worked by a shearer, and as the comb is forced along the skin of the animal, the fleece is cut. The machine can be run either with a steam or gas engine, or by ordinary horse power, and does not easily get out of order.



A. A. BALDWIN, Editor & Publisher, BRASHER FALLS, N. Y.
 SUBSCRIPTION, \$2.00 PER ANNUM; SIX MONTHS, \$1.00
 All subscriptions payable in advance.

ADVERTISING RATES.

PER MONTH:	PER YEAR:
One page, - - - - \$50	One year, - - - - \$300
Half page, - - - - 30	Half page, - - - - 175
Quarter page, - - - - 20	Quarter page, - - - - 100
One-Eighth page, - - - - 10	One-Eighth page, - - - - 50

Business Cards per square, size 1 x 2-4 in. \$10.00 per annum.

Payments due at the end of each quarter:—Transient advertisements due with order.
 Paid-up yearly subscribers can advertise for Help, or Positions, free of charge.

Remittances to this office should be made by Checks, Drafts, Post-Office Orders, or in Registered Letters. Address all communications to

A. A. BALDWIN, Publisher,
 BRASHER FALLS, N. Y.

This office is an agency for the Patterns of E. Lehmann, Paris, France. Latest English and French Novelties in fabrics of all kinds. Orders for these samples received here.

Entered at the Brasher Falls post-office as second-class matter.

BRASHER FALLS, N. Y., SEPT. 1888.

All who find this paragraph in their paper, marked with an index hand, can take it for grantage that their subscription expires with the present number. We respectfully request the renewal of your subscription by remitting \$2.00 for one year, or \$1.00 for six months at your earliest convenience. Prompt payments encourage the publisher, and will enable him to add new features to the journal. Please bear this in mind, and don't forget the "hand."

All who receive a sample copy of this issue and are not interested in it sufficient to become a subscriber, are requested, as an act of courtesy, to hand the same to some one whom they think would.

NEVER, since the birth of BALDWIN'S TEXTILE DESIGNER, have we received such flattering encouragements from its readers and contributors as during the past month. Six months' subs are renewing, and new ones are coming in. Old contributors remain to their posts, and new ones,—but old "vets" with the pen—are joining our ranks. No preceding issue has contained such an amount of valuable and original matter as the present one. There are articles in it which alone are worth, to many a mill man, a year's subscription. Can you afford to be without a journal of this character? We think not. If you would succeed, you must keep up with the times.

EACH month we welcome new names to our list, and each month we are informed that BALDWIN'S TEXTILE DESIGNER is better than ever. We hope this opinion will always prevail, and believe it will, if every reader will only tell us what he knows about promoting the interest in manufacturing. Why should you hesitate to write to your paper more than to a friend? You have no better friend than BALDWIN'S TEXTILE DESIGNER. Matter should reach us for an issue as early in the previous month as possible—say by the 15th.

ARE you doing what you can for us? Have you ever asked a friend to subscribe? Why not do so? Remember if each of you would just send us one new name it would double our present

circulation, multiply that number of our friends, and assure even a better journal for the future than in the past, for with growth we will make improvements. Friends of the paper, will you not help to extend its circulation, and thus enable the addition of other new features, by inducing your companions to "come with us?"

OUR original articles in the present issue will be found well worthy of perusal. The subjects discussed are all practical questions, and they are handled by practical men. Overseers, write for your journal; its columns are open to you at all times. Tell our readers what you know—and in return, we may possibly reciprocate, and tell you something you don't know.

WE have arranged with a practical mill manager to write for the TEXTILE DESIGNER, a series of articles on "Oils." The writer has made oils one of his especial studies during many years of mill service as a superintendent and is therefore able to base his arguments on actual experiments. The first article is now at hand—but too late for this issue,—and if all are as interesting as the first, we bespeak for them a hearty greeting by our readers. None should miss reading and studying them thoroughly. "Talks About Oils," will begin in our October issue.

THE attention of Fullers and Finishers is called to our ad., on inside of cover, of the "Fuller's Calculating Table," or a Ready Reckoner, compiled by W. H. Davis, a practical fuller. This valuable little work was published last May, and in our issue of that month we made mention of the same, to which the readers attention is now called. The regular price of this work has been two dollars per copy; but owing to Mr. Davis giving up the mill business he has sold out this work and all copies on hand to us, and we now offer the same at one dollar per copy until further notice.

WE acknowledge receipt of the "First Annual Report of the Board of Mediation and Arbitration of the State of New York," from the Commissioners: William Purcell, Gilbert Robertson, Jr., and Florence F. Donovan. The report makes a book of 734 pages.

THE Canoga Woolen Co., of Auburn, N. Y., are improving their old looms by applying the new Crompton box motion and Schilling's improved picking motion.

YORK, Pa., is said to have the greatest rag carpet works in the United States. Six hundred women and girls make carpet rags, and there are one hundred weavers and spoolers.

A New Composition for the Preparation and Finishing of Cotton, Linen, and Other Yarns and Cloths.

A material in the form of a paste has been patented by Mr. N. O. McIlhaga, of Belfast, for the preparation and finishing of cotton, linen, and other yarns and cloths. The composition is made up of 10 parts to any required quantity, of which 4 parts are palm oil; 2 parts are barilla soap; 1 part is lard oil; 1 part is ammonia; 2 parts are water. The features of novelty claimed for the composition are—(1st) Saving in use of more expensive finishing materials, and great economy in labor. (2nd) The composition entirely destroys chlorine or other gasses or acids which have been lodged in the fibre of the material during the first processes of preparation for bleaching or finishing. (3rd) The composition imparts a high class and beautifully soft silk or satin finish to linen or cotton yarns or cloths, and will amalgamate readily with starch or other sizing materials.—*Journal of Fabrics, Eng.*

"CELLULAR" FABRICS FOR UNDER-CLOTHING, &C.

WE are informed that one of the most successful novelties in the textile trade which has been submitted to the public for some time is the "cellular" material for underclothing, sheets, &c. The astute British matron—lucky patentee—has at first sight been taken with the general idea, style and substance of the article, thus insuring for the "cellular" clothing the success claimed for it. The all important feature of this material is that, being cellular in structure, perspiration passes readily through it, rendering the

concentration and retention of moisture under any circumstances impossible. Consequently, as the clothing is always dry, the absence of all disagreeable effluvia must be reckoned, especially by athletes, among its distinct advantages; and if in this respect alone it is decidedly preferable for the use of underclothing to those fabrics which, from closeness of texture, absorb, and thus unavoidably retain, the cutaneous exhalations. The "cellular" clothing is light, durable, and exceedingly cheap, and possesses the great advantage of undergoing any kind of washing without shrinking, while from its very large air surface, health and cleanliness are undoubtedly promoted by its use. To this cellular fabric the medal was awarded in 1888 by the Sanitary Institute of Great Britain.—*The Merchant World.*

REFINING OLIVE OIL WITHOUT CHEMICALS.

ACCORDING to G. Seidel, olive oil is put into a conicle tub provided with a steam coil. About $\frac{3}{4}$ inch over the bottom, a faucet is inserted, to let off the water and impurities, and about 4 inches above this a second faucet is placed for drawing off the oil. The tube or tank may be made of any desired size, but that described by Seidel holds about 2,000 lbs. It is placed upon a stone floor, and alongside of it are placed, at different levels, 5 to 6 clarifying tanks resting upon strong wooden frames. These tanks, which may also be of tinned iron, have a cylindrical form, a false perforated bottom about 1 or $1\frac{1}{2}$ inch above the bottom, and above this, at the side, a stop cock. A layer of cotton, or preferably glass-wool, is placed on the diaphragm.

Glass-wool is preferred as it may be easily washed and can be used for years, while cotton will last only for two or three operations. For every 100 pounds of olive oil to be clarified, 10 to 15 pounds of water are added. The oil is then brought to a boil, by means of steam, and kept so for two or three hours. It is then allowed to be at rest for 24 hours, during which time the water will separate. On opening the stop cock the partially clarified oil is allowed to flow into the first clarifying tank. When this is full, its contents are allowed to flow into the second, and so forth. When the first tank is empty, it may be refilled from the steam tank as soon as a new lot of oil has been treated as described above.—*Industriell.*

QUERIES *And* REPLIES

This department is for the interchange of knowledge, with and between our readers, on questions relating to textile manufacturing. We cordially invite all to take part in asking and answering questions through this department. Correspondents must give their name and address, also *nom de plume* if any.

QUERIES.

No. 17. SIR, will you kindly give us your instructions on running one of Davis & Furber's 12-qr. looms with outside cranks. We bought one second hand. It is in good condition but we cannot make it run good. Can you tell us what speed it should run at? Does the same rule apply in setting the picking motion as in other looms, respecting the crank being straight up? We have a good clean shed and with speed moderate it seems to lose time, and with fast speed it overruns. If you can give us any instructions that will help us they will be thankfully received.

Yours respectfully, T. & B.

[Will some one give a good, practical answer to the above query, it is above our capability of answering.—ED.]

No. 18. Mr. Editor, are not the weaves in the August issue of your journal, under the heading of "Composing and Combining Weaves," numbered wrong? I think weave No. 2, was intended to have taken the place of weave No. 1, and *vice versa*, to have the others come in in their order of explanations; am I not right? NOVICE.

REPLIES.

No. 18. Yes, "Novice" is right. That is a mistake which we acknowledge; it was not observed by us until several of the readers called our attention to it; however, the material points in the articles are not changed so long as the right number of each weave is kept in mind. Glad to have the readers observe such mistakes and call our attention to them.—ED.

PORTRAIT AND BIOGRAPHICAL DEPARTMENT.

This department is for Manufacturers, Agents, Superintendents, Designers, Overseers, and all persons engaged in the advancement of the Textile Industries. It offers to them a medium through which they can learn each others' Textile History, will promote the welfare of those who appear therein, and, be both interesting and instructive to all engaged in textile manufacturing.

Names of persons whose Portraits and Biographies have previously appeared in this department of BALDWIN'S TEXTILE DESIGNER:

Daniel A. Cook, Finisher, Providence, R. I. Everett M. Sinclair, Superintendent, East Rochester, N. H. Olin F. Ireland, Superintendent, Madison, Me. James C. Ryan, Carder, North Vassalborough, Me. Mrs. Florence E. Cory, Principal, School of Industrial Art, 124 Fifth Ave. N. Y. Elisha Allen, ex-Sup't & Designer, Winooski, Vt. A. E. Jones, Carder, Webster, Mass. James Hendry, Designer, Peterboro' Ontario, Canada. John Lenaghan, Weaver, Fall River, Mass.

Owing to a delay which we could not foresee or avoid we are obliged to go to press with this issue minus a portrait for this department.

Above all things which the publisher appreciates is prompt dealing and a word to be relied upon, particularly so in relation to all matter for publication.

CORRESPONDENCE.

THE following communications in regard to a Design Contest speak for themselves. We should be pleased to hear from many others on this subject, and when a sufficient number have shown an interest that will insure its success, we will then set forth our views on the matter, but not until then:

PETERBORO, ONT., July 14th, 1888.

Editor, Baldwin's Textile Designer.

In view of a Design Contest, I would suggest the following: Make the contest for a certain number of designs, say 6, 8, 10, or 12. Contestants to show or make out the exact appearance the cloth will have, also to give the drawing-in draft and chain to produce the same. This, I think is the best way to govern a design contest. We will say you make it for six designs, well, there would be the six complete designs, wrought out on point paper, showing exactly the appearance of the cloth, then there would be six drawing-in drafts and chains to produce the same. Open to all yearly paid-up subscribers to the TEXTILE DESIGNER. Designs for all wool and worsted goods, suitable for ladies' and gentlemen's wear. JAMES HENDRY.

ANDOVER, MASS., Aug. 6th, 1888.

Editor, Baldwin's Textile Designer.

I see according to your July and August numbers, you solicit ideas for running a Design Contest. I beg leave to offer a few ideas, which I hope may be of some service to you in the formation of such a contest.

1. Studies of plant form, and the best set of designs from the the same, suitable for dress fabrics, or carpets in all wool or mixed goods.

2. For the working out of a design, drawn upon design paper, with full instruction for the production of the fabric.

3. For the best set of designs, say 20, of plaids or checks showing the greatest variety of designs and best combination of colors.

4. For the reduction of a jacquard pattern to be woven with the least number of harnesses.

5. For the reduction of a 32-harness weave to the lowest number of harnesses that the pattern is capable of being woven, and showing the greatest number of weaves the above is made up of.

There are five ideas for you. Other readers will be able to give you more and better, which I think if carried out, the result would be very acceptable to beginners and probably something would come of it that would astonish old designers. You say there is no money in the contest for you; now I think it is very creditable on your part to bring forward such a contest, but it would be more honorable if some of our agents and manufacturers would help in such a contest as you seek to open. It is for their interest as well as yours and ours, and I hope that the read-

ers of your journal will not let the opportunity slip from their hands, but go right to work and bring something out that would be creditable to themselves and the nation. **FACTORY LAD.**

FALL RIVER, MASS., Aug. 8th, 1888.

Editor Baldwin's Textile Designer.

I am willing to enter another weave contest any time. I would like the contest to be new and different from the last one, that is, call for more harnesses, say 12, 14, 16, or whatever number you please so that it will be something unexpected to any one of us. I don't like to see all the expense fall on one man, and I am willing, for one, to pay an entrance fee of one dollar, to help in the running of another contest. **JOHN LENAGHAN.**

POMEROY, PA., Aug. 13th, 1888.

Editor, Baldwin's Textile Designer.

I have been thinking for some time of a way to aid the **TEXTILE DESIGNER** in a Design Contest, which if of no good, certainly can do no harm. I offer the following suggestion: Suppose every designer, old and young, send one dollar to A. A. Baldwin, then I ask of them to make a sample of fine worsted cloth and also send to him, with the weave and drawing-in draft for the same, and he to decide who is the winner; each design to be published in the **TEXTILE DESIGNER**, the winner to receive the amount sent in by each, less one-third which is to be retained by Mr. Baldwin for the benefit of his paper. Now don't be afraid to speak.

J. K. L.

CORDUROY MANUFACTURING IN THE UNITED STATES.

Efforts are being made in this country by some of our cotton mills to manufacture corduroy goods. It is reported that the principal business of an agent of one of our large New England mills, who is now in Europe, is to investigate the making of these goods. A large mill in Fall River has just put in a new loom which is made in England especially for the weaving of these goods, to experiment, preparatory to placing its orders for more. There is no doubt but that this class of goods can be successfully manufactured in this country, and there is really more inducement to make these goods here than there is to make velvet, because more of them are used, and they are not hard to make after one gets the method of making the cord. There is no question but there is money in these goods if made in this country, and we have plenty of manufacturers who can make them without any trouble.—*Boston Journal of Commerce.*

HINTS TO EMPLOYES.

THERE is only one spirit that achieves a great success. The man who seeks only how to make himself useful, whose aim is to render himself indispensable to his employer; whose whole being is animated with the purpose to fill the largest place in the walk assigned to him, has in the exhibition of that spirit the guarantee of success. He commands the situation, and shall walk in the light of prosperity all his days. On the other hand, the man who accepts the unwholesome advice of the demagogue, and seeks only how little he may do, and how easy he may render his place, and not lose his employment altogether, is unfit for service. As soon as there is a supernumerary on the list, he becomes disengaged as least valuable to his employer. The man who is afraid of doing too much, is near of kin to him who seeks to do nothing, and was begot in the same family. They are neither of them in the remotest degree a relation to the man whose willingness to do everything possible to his touch, places him at the head of the active list.—*Scientific American.*

PRACTICAL POINTS ON DRESSING.

[Written for **BALDWIN'S TEXTILE DESIGNER.**]

MERE are a few facts that may be of use to young men who are running dressers and care to fit themselves for higher places. Suppose you have 25 lbs. of yarn that you wish to use in a sample of 2,400 ends, 5 run yarn. We will use 10 spools, 40 ends on a spool, 6 sections. Now there are 1,600 yards in one lb. of 1 run yarn, in 5 run 8,000 yards to the pound. Now divide the 8,000 yards by the number of ends on

the spool, thus: $8,000 \div 40 = 200$ yards to each pound of 40 ends. Now multiply the 200 yards by 25, the number of pounds in lot = 5,000. Divide this by the number of spools, 10, gives us 500 yards on each spool, 6 times the length around reel divided into yards on spool will give the length of warp, minus take-up.

You have a spool that you wish to know how many yards are on it. Weigh the spool, subtract weight of bare spool, 18 pounds of yarn. Now you want to be sure of the size or number of yarn, for $\frac{1}{4}$ of a run means a difference of 10 yards for every run; it may be called $5\frac{1}{4}$ run. If you have any doubt of it, take off a weighing, 40 ends $1\frac{1}{4}$ yards long will give you a fair weighing. You find the yarn all right, it is $5\frac{1}{4}$ run, or 8,400 yards to the pound. Now divide by number of ends on spool, thus: $8,400 \div 40 = 210$ in each pound on spool, or $210 \times 18 = 3,780$ yards on spool. There is a good deal of repetition and a savor of barn-door figures in this, yet the writer thinks it will be of help to many young men. The number of yards in a pound, run, cut, or number is the key to all.

DRESSER.

WOOL IMPURITIES AND THEIR EXTRACTION.

FROM the circumstances under which wool grows, and also from the physical characteristics of both individual fibres and masses of the same, it will at once be evident to the enquiring mind that impurities in wool must be many and varied in character. These impurities may be divided into two classes—1st, natural impurities, viz.:—impurities which do not appear at first as essential, but which will be shown further on to be necessary for the production of good sound wool; 2nd, the un-natural impurities, viz.:—impurities which are present in the fleece through the habit of the sheep, and which will vary both in kind and quantity, according to the district in which the wool is grown. As the character, and consequently, the manner of extraction of these two classes vary greatly, it will be necessary to treat each separately. (1st), Natural impurities.—If wool be examined in the lock and then in the thread, or, better still, in white cloth, (as the oil necessary for good manipulation is not generally extracted till the wool reaches the cloth stage) it will at once be seen that a large amount of matter other than wool is present. Commercially, this matter is all termed wool yolk, but scientists, Chevreul for example, prefer to term only certain portions of this yolk. Experience teaches that wools from countries having hot climates have a much larger per centage of yolk, than wools from other climates. This is readily accounted for, as yolk to no small extent is the effect of perspiration. The presence of a large amount of yolk indicates good wool, and *vice versa*; further, the best wool is found on that part of the sheep which has the most plentiful supply of yolk. This knowledge is, perhaps, more serviceable to the farmer than to the manufacturer, as many wools come into the market partially scoured, and it would be hardly wise to judge wool by the amount of yolk when it may be so readily tested by handle, strength, etc., but the sheep farmer has taken and is taking advantage of this knowledge, for it is found that on poor, cold soils, which as stated before, give only a small quantity of wool yolk, farmers are in the habit of smearing the sheep with substances which partake more or less of the character of true wool yolk, the effect of wool yolk being evidently to strengthen and improve the wool. The following is the analysis of a sample of wool:—

Earthy substances	-	26.06	Earthy matter fixed by grease	1.40
Suint of yolk	-	32.74	Clean wool	- - - - - 31.23
Fatty matter	-	8.57		
				100.00

This gives only about a third of pure wool, but all manufacturers know that few wools lose anything like that, and yet most analysis of wool will be found to come very near the above, so the conclusion come to must be that in the chemical analysis something is extracted, which is not extracted in practice. This, with the knowledge that a good wool and consequently one containing a considerable amount of yolk is generally selected, no doubt does account for the seeming disparity. The reasons why in practice all the yolk is not extracted are—(1st) that it is known to those who have to manipulate wool that, do what you will with it,

it still retains its "nature" as it is termed, in other words, while there is a yolk on the outside of the fibre which is not difficult to remove, there is a substance pervading the interior of the fibre of an oily character, which is exceedingly difficult to remove, which in fact may, in a certain sense, be said to form part of the fibre. Nor is it deemed advisable to remove this completely, unless the wool is to be dyed some bright color, when it certainly is advisable to extract as much as possible of it, and even then some is nearly sure to be left. The only way which seems at all likely to extract all this oil is by means of the air-pump, this method having been tried on a small scale for both scouring and dyeing, the operation being carried on in a vacuum. The other reason why all the yolk is not extracted in practice may be said to depend on the fact that it is hardly possible to obtain an agent which will act on all the substances in yolk, such as the fats, minerals, etc. Thus in the chemical analysis, the fibre is treated with several scouring agents, one for extracting the oily substances, another the mineral, and so on, thus a much more perfect result is obtained, but at the same time, such results cannot be made the basis of practical calculation. A wool that loses half its weight is considered to lose a large amount in practice, while wools which come over here washed only lose from about 2 to 4 lbs. in 16. It may not be out of place to consider here the reasons for washing, or not washing wool before it is exported from the country in which it is grown. When the weight of the yolk, etc., and the cost of the carriage for wool between here and Australia, for instance, are considered, it is at once evident that to wash the wool before exportation means the saving of somewhere about half the expense of the carriage, which certainly is worth saving. In addition to this, wool which has been washed previous to exportation is not liable to be affected in color by the oils etc., present in the yolk, while unwashed wool is liable to this, but at the same time, these oils tend to keep the wools soft and plastic. The principal disadvantage of washing before exportation is that the yolk is lost, as the wool is only washed when some river or stream is near, which renders this operation easy, the sheep being washed in the running stream. This is undoubtedly a loss to the farmer, as the yolk possesses valuable manurial properties. This state of things has of late received more attention, and companies have been formed to extract the yolk before exportation, and to convert it into its most useful form. The manufacturer, perhaps, is not so much affected as the farmer, for if the wool is sent over unwashed, though the yolk is extracted and utilized, there is the extra carriage to pay. The amount of scour used need hardly be taken into account, as the yolk itself possesses good scouring properties; this obviates the necessity of any extra scouring agent being used. There is also another advantage of washing before exportation, and that is that the wool, being free from most impurities, is more readily judged, and this most certainly is an advantage, as those who have to select wool know how difficult it is to judge of the waste likely to occur. The best way, when practicable, to test the quantity of foreign matter present in wool is to scour a small weighed quantity, if it is intended to scour the whole, and then weigh, when the loss is at once ascertained; further, if the loss on the whole batch be required, the following is the formula:—"As the original weight of the quantity scoured is to the weight of the same after scouring, so is the weight of the unscoured batch to the weight of clean wool." Or, if the cost of a wool when scoured is required, the price in the grease only being known, then proceed as follows:—"As the weight of the scoured wool is to the weight of the same before scouring, so is the price per pound of the greasy wool to the price per pound of the scoured wool." The great scope there is for judgment in this matter is rendered apparent by the following list, which gives the variation of the several constituents of greasy wool:—

Moisture	-	-	4.24	per cent.
Yolk	-	-	12.47	"
Wool fibre	-	-	15.72	"
Dirt	-	-	3.24	"

In the previous analysis of greasy wool, the water was driven off before analysis, but from the above it will be seen that it is not an unimportant constituent. The quantity of water present varies according to temperature, the amount which should naturally be

present under ordinary conditions should be about 18 per cent. That wool does contain moisture naturally is readily gathered from the fact that, after wool has been dried after scouring, etc., it will in a day or so, gain perceptibly in weight. It has also been found that the presence of water affects the strength of the fibre, which is another proof that water is a natural constituent of wool. Before passing on to consider the scouring of wool, it will perhaps, be as well to mention a more useful division of wool viz. :—wool fat, wool perspiration, dirt, and moisture. Wool fat is soluble in ether, and is that portion of wool yolk which is most difficult to remove from the fibre. It is the wool perspiration, and no doubt, a fair proportion of dirt, which from being soluble in water, is removed in "sheep washing," and as this contains large quantities of potash, as remarked before, a great loss of very useful material to the farmer is the result. Having dealt with the principal natural impurity—wool yolk, under various aspects, it is now necessary to consider the methods and agents of extraction employed. The reasons for scouring are, first to bring the wool into a workable condition; second, to obtain a good color; third, to render the fibre, into which the wool is made, soft and mellow. A brief glance at the results of bad scouring (mechanically and chemically), which will also lead on to the first object, will suffice to show how important it is that this operation should be well performed, and will also prove how necessary it is that "little matters" should be well attended to. The first object, that of bringing wool into a workable condition, has a greater scope than will appear at first sight. Of course, the primary object is to extract the yolk &c., which would otherwise prevent the wool being carded well, but here we come upon another phase in its career; when the oils &c., which pervade the wool fibre are extracted, they immediately make way for its physical characteristics to be felt, and this characteristic is so strong in some wools that it almost prevents efficient scouring. This matter, however, has attracted the attention of textile machinists, and we are now possessed of, perhaps, as perfect scouring machinery as we can expect in relation to the physical agitation of the bath, and obtaining a good scour. The efficient extraction of the yolk is most important, especially if the wool is for dyeing, for if any yolk, &c., be left in the wool, the result will be irregular, blotchy, color; and again, if the wool is to be extracted, a sticky compound will be found on the fibre, which is caused by the action of the sulphuric acid on the fats, &c. This will be found exceedingly troublesome to remove, and as it will clog up the serrations of the fibres, it will prevent the wool from felting, and thus deprive it of the privilege of acting on the proverb—"In unity is strength." With regard to the second condition, viz., color, perhaps the wool farmer has that more under control than the manufacturer, for, as remarked before, though wool yolk acts beneficially in keeping wool soft, &c., it also causes the wool to degenerate in color, thus no doubt, the wool washers determine, to no small extent, whether wool shall be used for white fabrics or not, while many wools come into the market washed, a great difference will be noticed between them, some being nearly white, while some still contain no inconsiderable amount of yolk, and for white cloths it is, of course advisable to buy the whitest, still the fact must not be lost sight of that too strong scour and too hot water will give a yellow tinge to the whitest wool, and even dissolve the fibre to a certain extent, thus neutralizing once and forever the good effect ensuing from the care of the manipulators of the wool in the previous processes. With regard to the third reason for scouring, viz. to obtain a soft, mellow fabric, this, and indeed color also, may be affected, not only here but in some of the subsequent processes still this is no reason why every endeavor should not be made to forward the wished for result in this as in all the following manipulations, and if this condition is not complied with, good results cannot possibly be obtained. Harshness of handle may be due to too great heat in scouring, too strong scouring solution or, if extracted, to the sulphuric acid employed, or to subjecting the wool to too great heat in drying it. These examples all tend to show how important and necessary it is that the scouring of wool should be well understood and also well performed.—*TEXTILE.—Journal of Fabrics, Eng.*

(To be continued.)



LATEST NOVELTIES.

Continued from page 113.

[Under this heading we shall publish in each issue numerous designs of the latest novelties in the line of Fancy Cassimeres, Worsteds, Cheviots, Dress Goods, Cloakings, etc., the most of which will be taken from actual samples of the latest French and English patterns, which we will be regularly supplied with from the pattern house of E. Lehmann, Paris. In the examination of these designs for publication, we give the number of threads in the warp, the kind of yarns, and the picks per inch as shown by the finished goods; and in most cases give the width to lay in the reed.

We deem it unpracticable to attempt to give directions as to the size of yarns and other particular details, for the reason that probably not one mill in twenty would have the stock or facilities to produce them as given. We have, therefore, left that part for the superintendent, designer or boss weaver to arrange to his own liking and as will be adaptable to his stock. The basis as to the number of threads in warp, picks per inch, weaves and drawing-in drafts can be relied upon as correct: bearing in mind to commence in all cases to draw in as the threads are laid down in the dressing pattern, and in the drawing-in draft each black character (■) represents a thread to be drawn on the harness No. it stands in line with. Single width goods is the standard adopted in each instance.

If special information should be desired on any of these designs, it will be given under the heading of "Queries and Replies," in the next issue; or, if a private answer is desired, enclose postage for reply, and all such communications will receive our careful attention providing, however, that those requiring such information are on our subscription list.—Ed.]

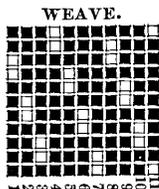
PATTERN No. 118.

This represents a fancy worsted stripe for trouserings, made as follows:

WARP PATTERN.

- 15 threads red shade, brown worsted.
- 1 olive bro. wor., and blue silk D. & T.
- 1 " " " or. silk D. & T.
- 17 threads of the D. & T.

32 threads in pattern; 2,880 in the warp.
Filling, all black worsted; 85 picks per inch.



PATTERN No. 119.

This represents a fancy plaid for ladie's dress goods, made as follows:

WARP PATTERN.

- 1 white. } 17 threads.
- 1 light shade brown. }
- 2 light blue.
- 1 white. } 17 threads.
- 1 light shade brown. }
- 2 marroon.
- 1 white. } 17 threads.
- 1 light shade brown. }
- 2 light green.
- 1 white. } 17 threads.
- 1 light shade brown. }
- 2 light orange.

76 threads in pattern; 55 threads per inch in finished goods.

FILLING PATTERN.

- 18 white.
- 2 light orange.
- 18 white.
- 2 light blue.
- 18 white.
- 2 marroon.
- 18 white.
- 2 light blue.

80 threads in pattern; 60 picks per inch.

WEAVE.



PATTERN No. 120.

This represents a nice little diagonal stripe for suitings and a very good thing for small mills to make; the weave is suitable for any grade of yarn.

WARP PATTERN.

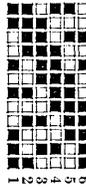
- 3 black.
- 3 mix, (70 blk. and 30 wht.)
- 3 olive brown.

9 threads in pattern; 1,260 in warp of 4½ runs.

Reed, No. 11½, 3 threads in a dent.

Filling, 1 pick of black and 1 pick of olive brown, spun 2½ runs; 40 picks per inch.

WEAVE.



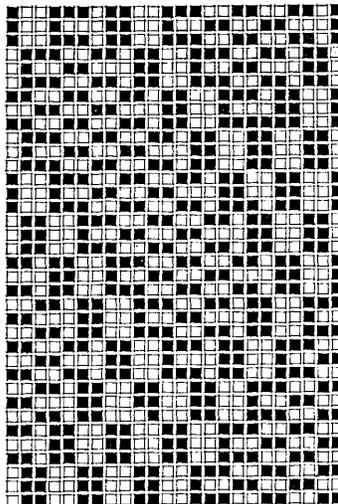
PATTERN No. 121.

A fancy design for worsted coatings; will look well made of all black yarn, or every third or fifth thread twisted with blue, green or orange silk, will look very rich.

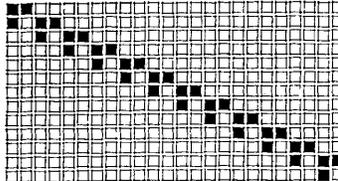
Warp 2,160 threads; laid out in No. 15½ reek, 4 threads in a dent.

Filling black, 66 to 72 picks per inch.

WEAVE.



DRAFT.



PATTERN No. 122.

A tasty diagonal plaid for suitings; make with either worsted or common woolen yarns as follows:

WARP PATTERN.

- 22 light olive brown.
- 2 black and white D. & T.

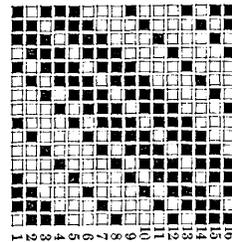
24 threads in pattern; 1,632 in warp.

Reed, No. 11½, 4 threads in a dent.

FILLING PATTERN.

- 22 dark drab.
- 2 brown and white, D. & T.
- 24 threads in pattern; 50 picks.

WEAVE.

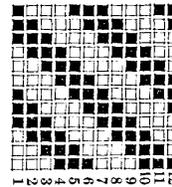


PATTERN No. 123.

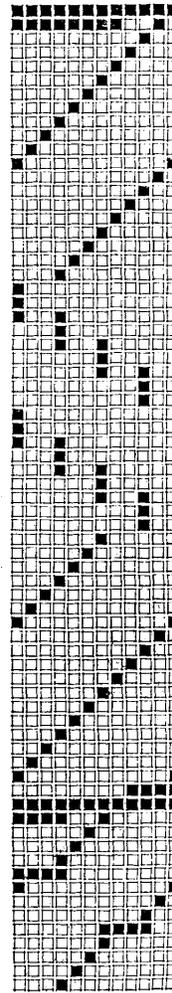
A fancy combination herring-bone and basket stripe for trouserings; may be made in either common or worsted yarns. Our sample is of common woolen yarns; warp olive brown, 1,860 threads of 3 runs, but would look well in black, dark seal brown, or dark blue. Lay out in No. 8½ reed, 6 threads in a dent.

Filling, a light gray mix, or may be of black, dark blue, or any other desirable color, of 3¼ runs, 55 picks per inch.

WEAVE.



DRAFT.



PATTERN No. 124.

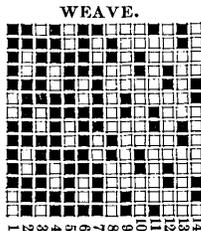
This represents a fancy worsted stripe for trouserings, and has in it a peculiar effect in the shape of a sunk stripe caused in the transposition of the weave.

WARP PATTERN.

- 16 olive brown.
- 16 blue black.
- 16 maroon and green, D. & T.
- 16 blue black.
- 16 olive brown.
- 16 black.

96 threads in pattern; 2,688 in warp, laid in reed 35 to 37 inches.

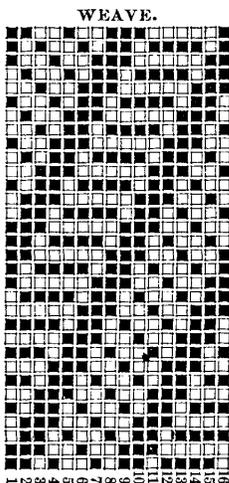
Filling all black; 75 picks per inch of considerable coarser yarn than in the warp.



PATTERN No. 125.

This represents a fancy diagonal for worsted coatings. The sample is made of fine yarns, black, and has 2,400 threads in the warp. Lay out in the reed from 34 to 36 inches.

Filling could be of some other color and look rich; put in 80 picks per inch.



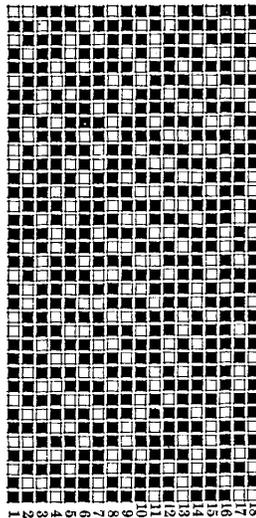
PATTERN No. 126.

This represents a heavy diagonal, suitable for coatings or whole suits, and is a good thing to work up a low grade of stock in the filling, but use good stock in the warp.

Warp 1,800 threads of three run yarn, and lay out in a No. 12 reed, 4 threads in a dent.

Filling, 2½ run, put in all the picks the warp will stand and not go bad.

WEAVE.



PATTERN No. 127.

A Scotch tweed effect for suitings, made of medium coarse stock as follows:

WARP PATTERN.

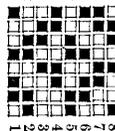
- 1 light gray, (60 wht. & 40 blk.)
- 1 black and white D. & T.
- 1 fancy mix, (75 blk., 15 yel. & 10 red.)
- 1 green and red, D. & T.

4 threads in pattern; 1,080 in warp of 1¾ run for the single yarns, and 4 runs for the D. & T.

Reed No. 8, 4 threads in a dent.

Filling all black, or of either the mixes used in the warp, spun 2 runs; about 32 picks per inch.

WEAVE.



PATTERN No. 128.

Another good thing for suitings made of common coarse stock as follows:

WARP PATTERN.

- 4 black.
- 4 olive brown.
- 4 gray mix, (50 wht. & 50 blk.)
- 4 red brown.

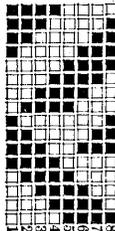
16 threads in pattern; 1,200 in warp, of 2 runs, laid out in a No. 9 reed, 4 threads in a dent.

FILLING PATTERN.

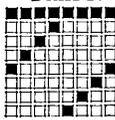
- 4 black.
- 4 red brown.
- 4 olive brown.

12 threads in pattern, of 2¼ runs; 44 picks per inch.

WEAVE.



DRAFT.



PATTERN No. 129.

This represents an attractive plaid and fancy design for suitings, made of common woolen yarns, medium stock and is well worthy of attention, especially in small mills where they have the facilities for weaving it.

WARP PATTERN.

- 14 black.
- 1 black and white, D. & T.
- 5 dark gray, (80 blk. & 20 wht.)
- 1 black and white, D. & T.

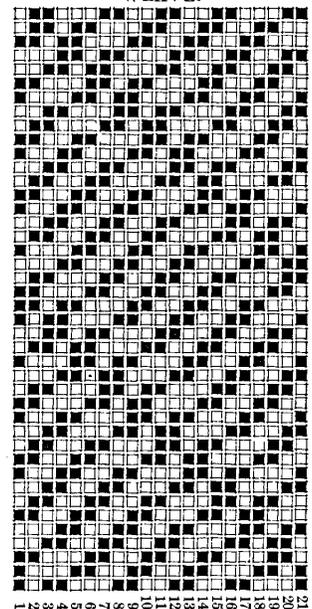
21 threads in pattern; 1,260 in warp of 2 run yarn for the single, and yarn for D. & T. spun 4 runs.

Reed, No. 8½, 4 threads in a dent.

FILLING PATTERN

same as the warp; yarn spun ¼ run finer than warp and put in 36 picks per inch. This will also look well in all one color or mix.

WEAVE.



A SEAWEED DYE.

F. Nettlefold, F. C. S., states in the *Chemical News* that, while experimenting on the production of gelatinous gun cotton, it occurred to the experimenter to nitrate alginic acid. This formed a low nitrated body, which was not analyzed. It was sufficiently elastic on compression, but not explosive. When dissolved in water alkaline solution, it gave a brown color. The original color of the nitro-alginic acid was bright yellow and insoluble in water.

Unmordanted cotton dyed a fine Bismark brown color, which was fast to soap, more than many aniline colors, equaling chrysoidine. Mordanting with alumina of tartar emetic did not increase the fastness or the depth of the color. The depth of shade was considerable, and could be worked to a great intensity. In an acid solution the dye failed to attach itself to the fibre, ammonia being the best alkali.

For wool the brown dye appeared to have little power of attraction. Mordanting did not increase the depth of the dye.

THE JUMBO LACE MACHINE.

LIKE most other industries, that of the Nottingham lace trade has had to encounter a period of depression, from which it has not yet wholly emerged. Improvements in details of manufacture have, from time to time, been introduced; but, as a rule, they have not been of such a decisive and thorough character as to constitute a radical advance. For some little time past, however, some improved lace machines have been quietly at work in the lace factory of T. Hooley (Limited), at Long Eaton, near Nottingham, and have proved to be an important means of bringing about a better condition of things for their owners. These machines are known as the "Jumbo" lace machines, and were so named from their size being much greater than that of the ordinary lace frames, although the increase in size is simply nothing more than an increased width. In the early days of the Nottingham lace trade, and, indeed, not many years back a machine 70 in. or 80 in. wide was an exception, and was regarded as a wonder. As however, mechanical science advanced, lace frames were made wider, until in time a width of about 150 inches was reached. But here improvement in this direction stopped, for any attempt to increase this width was attended with failure, inasmuch as the movable bars of the machine when over a given length sagged and vibrated, and to use a term in the trade, would not "gate" when the machine was at work, thus causing frequent breakage of threads and consequent damage to the lace in course of manufacture. Even with the ordinary 150 inch machine a considerable amount of damage is frequently done to the lace through the breaking of threads. What the bar really wanted was a support in the centre of its length, but for a long time it was not seen how this was to be accomplished without causing interference with the other working parts. It has, however, now been accomplished in a very simple but effective manner in the Jumbo machines, eleven of which, each weighing seven tons, we recently saw in operation at Messrs. Hooley's works, where they have been running for the past twelve months. The manner in which this has been effected is merely by giving the movable bars a support in the centre of their length, which support is worked automatically by a cam action, and moves the bars. By means of this arrangement the machines are now made 200 inches wide, the moving bars being supported at the centre, which practically gives two stiff machines of 100 inches, each in one continuous length. This improvement in no way interferes with the lace, nor does it cause the threads to break to any appreciable extent, the work of making good the lace by hand sewing after it comes from the machine being greatly reduced.

The practical outcome of this invention is an increase of 25 per cent. in the output of each Jumbo machine, the work being 200 inches wide, instead of 150 inches. But this improved yield does not involve any extra working expenses beyond the mere cost of the thread, for the lace is produced from the same cards, with the same amount of driving power and supervision as the ordinary 150 inch lace, and it is dressed in the same way. After the first cost, which is comparatively small, it is therefore a practically clear gain of 25 per cent. to the users. Messrs. Hooley are building a new factory at Sandiacre, which is now nearly completed, and which will be stocked entirely with Jumbo frames. —*London Times.*

A HINT TO CONTRIBUTORS.

[Written for BALDWIN'S TEXTILE DESIGNER.]

Iwant to preach a sermon. Oh my! Give us a rest; just as if the readers of the TEXTILE DESIGNER stood in special need of one—are an ungodly set, who rarely, if ever, attend church, and are never present at prayer meeting, who know nothing of Talmage and look with blank astonishment if you speak of anything said or written by any of the noted divines at home or abroad,—who belong to that class who cut with beaming faces and bright anticipations the pages of the *North American Review*, wherein Ingersoll holds forth and who wonder how long before Gladstone, that grand old Englishman will come down from his lofty eminence, renounce the faith which cheered his youth, and is his stay and support amid the activities of his marvellous old age, and join hands with those who loudly proclaim, "No research or investigation into nature has yet given positive evidence of the existence of a God." Just as if this paper was to

be diverted from its original purpose by a stranger who has no special fitness for the work he desires to do, nor claim upon the courtesy of the editor or its readers; a sort of a half crank, who desires to say in public something which will not be listened to in private by his most intimate personal friends.

It does seem to me Mr. Editor that too much is being said about my sermon which I intend to be a very brief one containing some home truths to my individual self.

If I am asked for my credentials, I reply that my grandfather, away back in the beginning of this century was an esquire, when the title was not given with the freedom of these modern times and as such was frequently called upon to stand in a ministers place and solemnize marriages, and out of the home of the first couple which he married came two ministers, and of relatives I have more than a half a dozen who are preachers, and one of them preaches in Boston, which is only another name for culture. Besides I have a brother who is a deacon in a church, and superintendent of its Sabbath School, and I have occupied the pulpit a few times myself, all of which ought to give me the right to say a few words from, "Thou art the man."

I hardly know exactly the way I ought to begin so must tell the readers of the TEXTILE DESIGNER why I have a desire to say a personal word to the writer of this article.

Last month my paper did not come until about the 10th of the month and the spirit not having moved me in any particular line of thought, I had waited to see if "MOSE" or "ROMEO," or some one as the old farmer said, would not give me an "idea," the which when I got, I put on paper in too hurried a manner which has set me to thinking it was not a good thing for me and very probably the editor was a little inconvenienced thereby. I have been very sorry for it and almost wanted to call back what I had written that I might feel when I mailed it again that I had at least done the best I could. True I had written some of the pages at least three times but what I should have done after having written so hurriedly, was to have laid the article aside and taken it up sometime when I felt fresh and in a critical mood, as if I was the real, instead of one of the assistant editors of the TEXTILE DESIGNER. In order to write an acceptable article, the writer should feel some pride in the copy he sends in and see that he does not take from the man at the head valuable time to make it readable. I have as yet to read the first word of complaint from the editor of this paper as to the way copy has come in, which certainly speaks well for his kindness of heart, for I am fearful I must at times have tried his patience and if I know of the writer of this article sending in any more hurriedly written copy, he will be at once "called out," and some things will be said which he would not take kindly from any one else save his wife. ONE OF THE ASSISTANTS.

CARBONIZATION OF WOOL.

BY A MILL MANAGER

(Continued from page 114.)

Carbonization by Means of Gas.—The main feature of this is the introduction of the fumes of muriatic or sulphuric acid amongst the wool,—the former acid is commonly used. The apparatus employed is an air-tight chamber, in which the wool is loosely placed upon wire hurdles or wool slats; the gas is then introduced, and the wool exposed to its action for three or four hours, when the flow of gas is stopped, and by means of steam pipes the temperature is raised to 212 degrees or higher. After a short interval the apertures are opened and atmospheric air introduced to remove the fumes of gas, and the wool is then treated as before indicated. It is important that with this treatment the wool ought to be of a uniform moisture which assists the action of the gas; but if too much moisture is retained in the wool, the gas will form liquid muriatic acid, and will cause injury to the wool. The fumes of muriatic acid may be produced by the evaporation of the acid placed in suitable vessels, and heated, but it is better to produce the gas direct from ordinary salt and sulphuric acid of 66 degrees B., mixed carefully in an earthenware vessel, and conducted by leaden pipes to the chamber.

A modification of this method is the evaporation in the chamber of ammonia placed in glass vessels, to be used after the flow of muriatic acid gas has ceased, for the purpose of neutralizing the superfluous hydrochloric gas.

Another method is by employing a gas made by sulphuric acid and hydrochloride of ammonia. This produces a very powerful gas, and the wool only requires but a short time in the chamber. This process has the advantage of bleaching the wool, making it much whiter and glistening in appearance.

From the foregoing it will be seen that the process consists in the employment of acid, either in a liquid or gaseous form, or by the use of the chlorides of aluminium or magnisium; and the writer, who has experimented on the subject for years, and tested the various processes, can give his testimony in favor of the use of the chlorides as being by far the best. A large number of American manufacturers have now adopted this process, and it is almost universal in France, Germany, and England, where there are large establishments that make a specialty of scouring and carbonizing wools, and their principal patrons are those manufacturers who aim at producing exceptionally fine goods.

The chemical burling of wool has many advantages over the burring machines. The staple of the wool is not broken or injured in the least, and there is no loss of wool. Any one who is acquainted with woolen mills will readily allow that there are large quantities of wool thrown out by the machines along with the burrs, and the wool adheres so firmly to the burr that it is impossible to take it off, except by means of the chemical burling, which destroys the burr. By the action of the machine the burrs are simply stripped or torn off, and as each retain particles of the finest part of the fleece, it will readily be seen that the waste of wool amounts to a good deal. In proof of this there are large quantities of this wool annually imported from France and England. Certain firms there, who make a specialty of carbonizing wool, buy up all the burrs and burr machine waste from parties who are using the machines, and by carbonizing they obtain quite a percentage of first class wool, that is readily bought by manufacturers of dress goods and flannels.

The writer is prepared to negotiate with any one who may think of commencing this business, and who may want further information on this subject.—*Canadian Journal of Fabrics.*

POTASH WOOL SCOURING SOAPS, THEIR ADULTERATIONS AND COST OF PRODUCTION.

BY W. J. MENZIES.

(Continued from page 115.)

IF the soap is made simply for consumption, the second melting process with or without pearl ash need not be adopted. The advantage however of remelting is that though saponification is always insured, and the danger of leaving any unsaponified oil thus avoided. The result of any unsaponified oil is to impart a peculiar smell to the goods washed; if, therefore, this soap is used for any finishing process, it is generally better to remelt it (with or without a little refined pearl ash, depending upon the purpose for which it is required), as in this way the last traces of cotton seed oil are thoroughly decomposed. If not remelted the concentrated soap should be kept for a week before use. Even if remelting, it is better to keep the soap for a short time before using.

For washing dirty or greasy wool the soap can be made rather stronger. In this case take only 160 pounds instead of 200 pounds of oil. For washing wool in wool-producing regions, a scouring soap may be made with tallow alone in every way equal, if not superior, to an oil soap for the purpose. Fifty pounds of potash, dissolved in about five gallons of water, and mixed with one hundred and eighty pounds of melted tallow, in a similar manner to the directions first given, will produce a soap in every way suited for scouring greasy wool. An estimate of the cost of this soap cannot well be given, as it depends entirely on the cost of the tallow. In many distant up-country stations, or out west, tallow is almost worthless; in such cases the cost of the soap would be a very nominal figure, being simply that of the potash used, which amounts to a very small part of the actual cost of any soap.

Olive oil can be substituted for cottonseed oil in the manufacture of soft potash soap, and produces a very fine article, but it is much more expensive. It may here be remarked in passing, that many consumers of soap when they have purchased and fan-

cy they are using a soap professing to be made from nothing but pure Gallipoli olive oil, are in reality very much mistaken. This soap is often made with cottonseed or linseed oil, and the peculiar green tinge obtained by simply adding a percentage of hempseed oil; it is possible, also, to obtain this color by the use of chemical coloring matters. Directions for producing the required shade of color were recently given in a German soapmaker's publication. Linseed or rapeseed oil can be used alone for making soft soap, or mixed with cottonseed oil, but they are slightly more expensive than cottonseed. Many low-classed fish oils can be used and a cheap and good soap made, but the smell of such a soap is rather objectionable. Oleine saponifies well and makes a good wool-scouring soap; the saponification, however, is so extremely rapid that placing the oil in a pan, heating it, and then adding a lye of about 5 Baume, made from Greenbank caustic potash and boiling until it is saponified, is generally the most satisfactory way of treating this article.

In conclusion I would remark, that one of the great defects of all potash soaps hitherto sold, is that they have contained so much *free or unsaponified alkali*. This quite unfits them for fine finishing or sizing purposes, and actually has caused a neutral soda soap to be preferred to a potash soap for these uses, notwithstanding the fact, that, as pointed out in my previous remarks, a potash soap is undoubtedly more suitable for finishing all descriptions of goods than a soda soap. The reason of this is that it has been so far impossible for the soapmaker to make a neutral potash soap with Montreal potashes, woodashes, or carbonate of potash. There is no separating or salting process possible, as in the case of soda soaps made with soda ash or other impure form of soda alkali; all the carbonate and impurities *must* necessarily therefore go forward in the case of the potash soap, and in addition a considerable amount of *caustic* alkali of necessity added to complete the saponification of the oil, the last remaining portions of which are with difficulty converted into soap in the presence of carbonate and impurities. It will be evident, therefore, that with Montreal potash or causticized carbonate of potash a *neutral* potash soap was an impossibility, whilst on the other hand, with *pure* caustic potash, it is easily obtained. With pure caustic potash, there is no carbonate to remain in the soap when made, or impurities to retard the action of the caustic potash, the last trace therefore, of oil or tallow and caustic potash, readily come into combination, and the result is a pure and neutral potash soap.

There has been a general impression amongst consumers that a potash soap acts more strongly upon colors, and is generally a stronger soap. Actually just the reverse is the case. A *neutral* potash soap is less liable to injure delicate colors, as potash acts more gently on all vegetable and animal fibres than soda. Another very important point in the consideration of this subject is, that a potash soap is far more soluble than a soda soap; it therefore penetrates more quickly, and works more effectively in removing dirt or grease. A much smaller quantity or a weaker solution of neutral potash soap is required, as compared with a soda soap, and therefore delicate colors or fabrics are less likely to be injured. Potash soap is also more suitable for either finishing woolen goods or sizing cotton or linen goods, owing to the softness and silkiness it imparts to them. A very good neutral finishing and sizing soap can be made from tallow alone with the following proportions:—50 pounds of pure caustic potash dissolved in five gallons of soft water, and this lye stirred in as before directed into 210 pounds of clean melted white tallow, at a temperature of about 120 deg. F. The whole is then wrapped up and kept for a week or ten days in a warm room until the saponification process is absolutely completed. This will give a most beautiful soap, nearly as hard as soda soap, and also one that will not injure the most delicate colors. If after this soap is made it is cut up and kept in a warm room for a few weeks, the quality for all finer uses will be much improved.

The cost is about as follows:—

210 pounds of best white tallow, at 7 cents per lb.	\$14.70
50 " Greenbank pure caustic potash at 9 " " " "	4.50
50 " or five gallons soft water.....	0.00
310 pounds hard potash soap costing.....	19.20
or about $5\frac{3}{4}$ cents per pound.....	

The above is the finest and purest soap that can possibly be produced. Nothing could be better for all sizing purposes, and as it retains in its composition all the glycerine originally contained in the tallow. Besides being made with potash, it has great lubricating and softening properties, and for this reason a potash soap will allow a much greater weight of sizing to be used than when a soda soap is employed.

In conclusion it is as well to add that the prices taken of materials in the foregoing calculations of the cost of soaps must be considered as only approximative, as of course they are all liable to the usual market fluctuations.

CARDING ENGINES AND THEIR CLOTHING.

A lecture given at East Hampton.

BY MR. JNO. BUTTERWORTH, F. R. M. S.

(Continued from page 116.)



WE must now draw your attention to

SEVERAL OTHER FORMS OF CARD TEETH.

No. 6 represents the flat wire tooth. The wire was originally made flat throughout, like the bit of fillet accompanying the tooth, but now I believe the teeth are only flattened above the bend, as shown by the sample. No. 7 represents the double convex wire, and No. 8 represents Walton's angular wire. All these different forms of wire suffer from a side weakness when grinding—the flat and double convex especially so—but the angular wire is more firm, and when made in steel, is considerably firmer than ordinary round iron wire. The object aimed at in these different forms of teeth is to produce a wire that would readily grind up to a smooth, keen point, and I believe that angular wire, so far, has bourn very good tests. No. 9 sample represents what a true needle point ought to be. If ever cards are made with that form of point, you can see that they would tell a different tale to the present imitations, and Ashworth's last attempt is a very near approach to a true needle point, but having to form it by side grinding, as he states, I fear it will be left rough, like all other attempts. A true needle point can never be formed with the present modes of grinding, because it must be smooth and round quite up to the point. Absolute smoothness is essential in all card wire, if cards must clear well with the enormous weight that is now being passed through them, and No. 10 sample gives you an idea of the smoothness that all such wire ought to have. Nos. 11, 12, and 13 are the last three forms of card teeth we have to notice. They represent the form of point that has had to do duty for something like a century. I would give it up for something better, but not because it is old. I respect the old tooth for what it has done. I wish to say a few words as to the merits of

PLAIN, RIBBED, OR TWILED FILLETS,

for I suppose we shall be told that sheets are out of date, so little is seen or heard of them. Whoever had to do with laying down the original plan of clothing cards deserves credit for a good share of common sense. They stuck to sheets set plain for clothing every part of the card, and I feel sure that they were only driven to the use of fillets when it became essential to draw a continuous web from the doffer, so as to make a sliver. I have no doubt there are gentlemen present who know that I have stuck hard and fast for sheets as covering for cylinders and tumblers, and though I have hesitated to put them on the cylinders of revolving flat cards, it is not that I have lost faith in them. A plain set card is made on correct principles for clearing quickly, especially so with sheets, and I always consider there is a greater suppleness in a plain back card than there is in a rib back, which seems to be caused by the teeth being more crowded in the foundation in the case of the rib back than they are in the plain back. But you will perhaps say, "What about the loss of wire through such large spaces between the sheets?" Ah! well; you have raised the ass's bridge that hundreds have raised before anent this matter—What must we say? Can you do without space between your flats either in Welman or revolving flat cards? If so, where will the heel and toe of your flats be? I think you have robbed the revolving flat enough already of those spaces. I think, if you will investigate the matter, you will find that the spaces of sheeted cylinder do ample service to compensate for any loss of wire, but *apropos* of this matter, one authority makes a calculation giving us

about 14 fibres to the square inch in a card carding 600 to 700 lbs. per week, so that we can afford to lose a few points. As to the extra current of air from the sheets compared to fillets, I should say that the almost perfect control we now have over these air currents, by the present system of blocking, should scarcely need a pause. I am pleased to see that some attempt is now being made in the nailing of fillets to get back the position the wire holds in a sheet. I refer to

NAILING THE FILLETS ON IN RINGS.

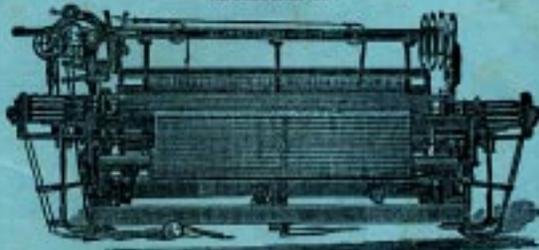
It does away with tail ends, giving a better selvage to the web. Of course, a break is made at every piecing, but as these are in a line across the cylinder, a block of wood or some other material is inserted that will grind away as the card wears down. As to ribbed or twiled fillets, ribbed is mostly chosen for rollers and clearers, because of the greater firmness given by the mode of setting. Twiled fillet, however, clears better and sooner in grinding on account of the absence of one or two rows of points at each side of the fillet. Of course, there is more space between the teeth, and the short fibre leaves the card quickly at this point. I am reminded here about the great rage there is now to have all the carding points we can get stuck in a card. To such an extent has this been carried, that we get a card so densely crowded with points that many impinge one against another. "If" as the authority I have quoted states, "we have four times as many points in the cylinder as we have fibres to be laid hold of, and eight times as many in the flats, 44 at work," surely there is no need of all this crowding of points. This, I think, will furnish another reason why cards clear so badly. Card wire is intended to perform the same office that a comb does on a combing machine, but if the points are overcrowded, how is it possible to give a combing action to the fibre? 120's and 130's in the counts of cards are as commonly spoken of now as 90's and 100's used to be. I grant that we require an access of points over the number of fibres, but when it is made out that we have some 600 points to every 14 fibres, it would look as if we had gone far enough in this direction. I fear we have not much time to go into the subject of

GRINDING CARDS.

You know my views on side grinding, or that mode in which a feather edged emery disc penetrates between the teeth half way down to the heel. The object aimed at is right, but the means adopted to accomplish it are wrong. The plan of slow grinding is becoming, and will become, more common. To give our young friends a better idea of what I mean by slow grinding, I will say that it means running the card very slowly, while you run the emery roller very quickly. The opposite, and common, mode of grinding is to run the card at a far greater surface speed than your emery roller. To enable you to form an estimate as to which is the best mode, I will put it in this way:—If you bring two revolving surfaces into contact with each other, that which makes the greatest number of feet per minute will tend to wear the other away, so that, in case of a cylinder or doffer making more feet per minute than the emery roller that is supposed to be grinding them, the tendency to grind only the tip of the teeth, and in this way produce a flat point, which we know is produced, but by slow grinding, you get more to the back of the tooth, and produce a nearer approach to a diamond point. The principal argument used against slow grinding (which is groundless under proper management) is that it heats and takes the temper out of wire. If so, what about side grinding where the discs are forced down between the teeth? Is there no heating there? I am in favor of slow grinding, using Dronsfeld's corrugated emery roller. It will get as far down the sides of the teeth as it is wise to grind them, and it can be covered with fine emery, yet answer all the purposes of coarse emery. I do not believe in very coarse emery for grinding cards, and I am reminded here of what an old friend, who has worn his head gray studying these matters, said to me one day when we had this subject up. He said:—"A chap does not often take his razor to the slop-stone to rub a shaving edge on it." I am afraid my paper has been somewhat disjointed, but I have done my best to make myself as intelligible as possible. It is a subject that others are investigating. I suppose we are all seeking after truth, and all that we ask is "more light."—*Journal of Fabrics.—Eng.*

KNOWLES LOOM WORKS.

BUILDERS OF:



-OPEN - SHED - FANCY - LOOMS-

FOR:

Worsted, Woolens, and Cotton Goods, Silks, Satins and Plushes.
Also Looms for Ribbons, Bindings, Suspenders, &c.,
and every variety of Weaving Machinery.

Send for Circulars.]

WORCESTER, MASS.

LATEST PATTERNS,

Of English & French Novelties of

FANCY CASSIMERES, WORSTEDS, CHEVIOTS, CLOAKINGS,
AND ALL KINDS OF DRESS GOODS.

Packets of 200 Designs, assorted as to wishes, on receipt of

\$7.50 P. O. ORDER.

No subscribing needed, any number and any Style will be supplied.

E. LEHMANN,

26 RUE DE L'ECHIQUIER, PARIS.

Subscribe for
Baldwin's Textile Designer

Only \$2 a year.

Remember, that the Editor is a *practical Designer*, and that
it is the most practical journal of its class in the field:

He believes in helping those who help him.

Address all orders to, A. A. BALDWIN, Publisher,
BRASHER FALLS, N. Y.

WEBSTER'S UNABRIDGED

In various Styles of Binding.



Besides many other valuable tables, the latest
issue of this work contains

A Dictionary

118,000 Words, 3000 Engravings.

A Gazetteer of the World

of 20,000 Titles, (recently added) and

A Biographical Dictionary

of nearly 10,000 Noted Persons.

All in One Book.**A Library in
ITSELF.**

The Latest Edition has
3000 more Words,
in its vocabulary, than are
found in any other Ameri-
can Dictionary, and nearly
three times the number of
Engravings.

In quantity of matter, it
would make 75 12mo vol-
umes usually sold for \$1.25
each.

It is an ever-present and
reliable school-master to the
whole family.—*S. S. Herald.*

Webster is Standard Authority in the Gov't Printing Office, and with the U. S. Su-
preme Court, and is recommended by State Superintendents of Schools in 36 States.
Published by G. & C. MERRELL & CO., Springfield, Mass.

WHITNEY & MOLT,

Manufacturers of Compound

Indigo Blue Dye,

MILLBURY, MASS.

Wool, Cotton, and Yarn colored to order all Shades Indigo.

BALDWIN'S**LOOM-FIXERS' MANUAL.**

Contains rules and instructions for setting up and operating
the CHOMPSON, and KNOWLES Looms; the production of cloth
on Cam Looms; Spreading the warp threads in the process of
weaving; and other valuable information for Loom Fixers, and
others engaged in operating looms. By mail prepaid,

PRICE, \$1.50

This Journal one year, and the "Manual," for \$3.

Godgeshall & Piper
DESIGNERS & ENGRAVERS

ENGRAVERS' WOOD

ILLUSTRATIONS OF EVERY DESCRIPTION.
OUR EXPERIENCE AND FACILITIES FOR ENGRAVING ALL KINDS OF
MACHINERY
ARE UNSURPASSED. SEND FOR SAMPLE SHEET.
WE MAKE A SPECIALTY OF ILLUSTRATING
CATALOGUES.
Making our own PHOTOGRAPHS
THEREBY OBTAINING THE BEST POSSIBLE RESULTS
733 CENTRAL ST., LOWELL, MASS.

BALDWIN'S

Treatise on Designing and Weaving,
Plain & Fancy Woolen Cloths,

Price, \$4.00

With this Journal, one year, both for \$5.00.

Baldwin's Designers' Chart.

This Chart illustrates a Fancy Pick-out reduced to its lowest
term, showing how to find the Weave, Chain Draft, Cross-draw-
ing-in Draft, and full instructions for beginners to learn the same.

PRICE, \$1.00 BY MAIL.

We will give the "CHART" and BALDWIN'S
TEXTILE DESIGNER one year on receipt of \$2.50.