THE TEXTILE MERCURY.

Machinery and Appliances.

THE PREPARATION AND SPINNING OF BARCHANT AND WASTE YARNS.

II.—CONTINUED.

The finisher card can be supplied with one or other of two condensers, namely, the Saxox or the Bolette condenser, according to the option of the purchaser, who will be governed in his choice by the nature of the material he is going to use. The Saxox condenser is of the latest and most improved form, having leather tapes. The Bolette has steel tapes. Every provision is made to ensure the perfect and continuous division of the web into threads of uniform thickness. The weight turned off the finisher card is 30 lb. per hour of cotton.

in. before the carriage completes its outward run. The carriage then continues its course, the effect being that thick uneven piles that have not taken any twist are drawn out, rendered even with the rest, and receive their complement of twist. Others are: a patent rope tightening apparatus for the taking-in; a scroll band tightening frame; a patent clip for fastening the scroll-band; a click locking motion; a patent automatic locking motion; a back-off chain tightening motion; a long coping rail with loose front antom to incline for regulating the locking of the faller, patent step covers, special arrangements in connection with the drawing-out and taking-in of the carriage, which causes it to stop in cases of obstruction during the drawing out, and by which the spinning operations will cease automatically, should the cam shaft by accident make itself change before the proper time; an arrangement by which the mule can be suddenly stopped during the going

of the carriage to prevent accidents; a safety catch to keep the mule stopped; special arrangements to discriminate the taking-in friction by the going in of the carriage. These various patents are the same as are applied by the makers to their cotton mule. To the woolen and waste mule is applied a stop motion for stopping the mule when the carriage is close up to the roller beam, by which the attendant can stop it from any part of the whole length of the mule when requisite to replace empty condenser bobbins with full ones, or any other purpose, without having to run to the headstock.

THE SPINNING PROCESS.

The spinning process in the production of Barchant and waste yarns is performed either on the cotton mule or the woolen mule, according to the purpose for which the yarn is to be used. The cotton mule in its construction differs only in being arranged to spin from condenser bobbins, and having several special appliances to suit the requirements of the article being produced. The first of these is a special motion to disengage the delivering rollers at a distance of from 1 in. to

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FINISHER CARD WITH SAXOX CONDENSER.—MESSRS. PLATT BROTHERS AND CO., LIMITED, OLDBAM.

an inch and half. These lines can be altered very easily, and adjusted to requirement. When draft is not required in the rollers the front and middle top rollers can be removed and the back solid top roller placed upon and between the front and middle bottom rollers thus being self-weighted. 2. With one line of top and bottom rollers, the top roller of 3½ in. diameter, and self-weighted same as the ordinary woolen mule roller parts. 3. With two lines of bottom rollers and only one line of top rollers, all polished and plain, the top roller resting upon and between the two bottom rollers; the top rollers having no card points. This style is growing in favour very much, especially when the engines and condensers are of the best construction.

These mules are made to spin directly from the condenser. The numbers span range from 3's

counts No. 3. The observer, whether inexperienced or an expert, will be struck by the regularity of the work, and the quality of the results achieved, and more than all, by the little supervision needed by the machines. We illustrate the finisher card with the Saxox condenser applied.

THE SELF-ACTING WASTE MULE.

The self-acting waste mule is often constructed on the wooden mule type of headstock for spinning the finer counts of waste and Barchant yarns, say 8's to 12's. This is usually fitted with
The Textile Mercury.

The following are mostly translations from foreign sources. We do not guarantee the results from these recipes, but we give them for the purpose of showing our readers what their foreign competitors are doing.

**DYEING OLIVE GREEN ON CLOTH.**

**FIRST METHOD.**
For two pieces of 10 kilos. The goods are previously well wetted. Dye in a bath with:
- 150 grams Orange Oxide,
- 200 " fast or any yellow,
- 60 " acid green.
- 14 litres sulphate of indigo,
- 6 kilos tartar preparation,
- 60 grams acid galls,
- 100 " green acid.
- Cool, enter, boil for three-quarters of an hour, then add:
- 300 grams picric acid.
Indigo carmine can be used for the sulphate of indigo.

**Indigo Extract.**
1—2 lb finely ground indigo placed in pots are slowly mixed with 5—8 lb. Northcote's sulphuric acid; this operation should take 14 hours, and the mixture be well stirred after every hour. This indigo extract is to stand to to stand for one day. It is usual to pour the produce of the indigo into 10 litres of water.

**SECOND METHOD: PRODUCED WITH DYE WOOD IN CONCENTRATED SULPHURIC ACID.**
For three pieces of 14 kilos the goods are previously well wetted. Dye in a bath with:
- 25 kilos Indigo-chips,
- 200 grams tartar,
- 500 " indigo,
- 4 " copper sulphate.
Boil for two hours; then add:
- 2 kilos, bicarbonate.
- 12 " indigo sulphate.
Cool, enter, boil for a half hour, then add:
- 250 grams picric acid.
Boil for half an hour.
1 scoop indigo is equal to 3 litres.
1 can logwood is equal to 10 litres, and contains 1 kilo of logwood.
With fuscid and indigo bright shades of green are obtained.

**THIRD METHOD: PRODUCED WITH DYEWOOD IN DILUTED SULPHURIC ACID.**
By this joint clearing and loss of colour eight of the tannin matters becomes completely like tannin, and were compared by the following method with tannin:

Of each separate tannin a solution standing at 93 deg. Be prepared, in each solution a 10 grammes weight was laid for an hour at 60 deg. C; lifted out and placed in one bath at 60 deg. C of tartar emetic, given 10 minutes in this, lifted, washed, and placed in equally strong solutions of acid of violet 7 B and comparatively dyed.

Algarbilla, sumach, mimosa, was darker than tannin. Then follow myrobolan, divi-divi, valonia, oak chestnut. It is singular that the colour tone of algarbilla, sumach, and mimosa were more lively and finer than the colour tone produced by tannin itself.

A comparative examination of the entire series of the eight most important tannin matters was made, and, the results were extraordinarily good.

The first motive in my investigation was the practicability of the dye named to the production of the most delicate and sensitive 10 hours that could be selected; thus were dyed cotton-blue (dark), methylblue (blue), amaranth green, safron B (pale), rose Bengal (pale). With such dyes as rose Bengal, safron B, and methylblue, myrobalans and divi-divi gave decidedly more firey shades than tannin.

The use of the cleared and decoloured tannin matters in practice by of extra-ordinary value. I hold a patent for a patent for my decolouring and clearing process, and extend my claim as well to the application of these clored and decoloured tannin matters to the tannin as well as to the dye-house. — Dr. August Foelding in the Leipzig Monatschrift.

**RECIPES FOR DYERS.**

**BLEACHING, DYEING, PRINTING, ETC.**

**TANNINS IMPORTANT TO THE DYE.**

(Continued from page 656.)

**Valonia.**

Are the fruit calices of Quercus gross and Quercus r ticas, dried to 20—25% of their weight of tannin. Good tannin material, and also important in the dye-house. The accompanying colour matter is a dirty yellow.

Hearing on the most important tannin matters in the following small skin of chemical methods by comparative dyings and of the accompanying colour matter, and on carrying out dyeing processes in addition.

From my work I have come to the following process. — Of each tannin, make a 5 grammes subject to extraction, so as to make one litre of extract solution. With a litre a cotton sky is to be dyed; and with a litre also a prepared garcinia strap is to be dyed in a similar way.

The colour tones as well upon the cotton as upon the garcinia strap were all compared with one another and are different. The shade was for each tannin either pale blue grey, dark blue grey, green grey (pale and dark), yellow grey, red grey, brown grey, dark brown, pale brown, yellow, and so on.

Cinnamon, myrobolan, divi-divi, and algarbilla, produce different gradations of a most sensitive character — blue grey and yellow grey and between the most minute differences. Even so mimosa, valonia, oak bark, chestnut, and pin are.

Effectively these tannin matters differ from one another, so that a glance at the shades is enough to distinguish the particular species of tannins with complete certainty.

The dyings themselves should be carried out in a water bath.

Upon a large water bath with 10—12 apertures for so many dye-glasses, in which the entire series can be compared together, 4 litres of each tannin extract, made as above, are placed in each glass. Then 10 grammes of cotton yarn are placed in each glass and boiled for one hour, the cotton yarns are then lifted, steep and 20 cc. of copper solution (10 grammes in 1,000 cc.) placed in each glass, the skins returned to their respective masses and again kiln dried for half hour longer. Taken out (a distinguishing mark must be supplied to the separate skins) washed, and dried. The skins are then examined as an example of the method: oak bark and chestnut were extracted and one litre of each was used and cotton was dyed in them after the above method. The cotton in the oak bark extract became a yellow grey, while that in the chestnut extract became a pale reddish grey; mixing both extracts half and half produces on cotton a dirty brownish grey shade.

The dyings upon cotton prepared with different mandarins, as upon the garcinia stripe, are still in a higher, and it gives the tannins with their different accompanying colouring matters extraordinarily distinct. Especially on the aluminas stripes it is found to be clear and sharp, this dying of the colouring matter of the tannin.

This condition gave me the idea to separate the colouring matter from the tannins, so as to be able to get pure tannin.

The extract of tannin matter is treated in a suitably diluted menstruum with aluminate acetic; the colour lake, resin, and mucilage of the tannin are precipitated out, and are filtered off.

Now, should the entire extract become coloured, some sulphur dioxide in a nascent state is mixed with it; the solution is then entirely bleached; then, with a sufficient quantity of lead acetate, the tannin is precipitated out, filtered, and, with the calculated quantity of sulphate of lead, the tannin is decomposed with the formation of lead sulphate in an insoluble form, and tannin in aqueous solution; these two bodies are separated by filtration.

With this now cleared and decoloured tannin solution dyings were made exactly as described above, and there was not a question to the most minute distinction of the greatest number of the tannin materials. The grey was generally a blue grey, yet with differences in the strength of the tone; the shade of blue grey showed itself to be mostly like that produced by gallic tannic acid; such was that from sumach, divi-divi, oak, myrobalans, chestnut, and Valonia tannins. Mimosa gave a fine but very dark blue grey.

Extracts of tannin or gallotannic acid can, by above process, be cleared and decoloured.

**PROCESS FOR OBTAINING A WHITE PATTERN ON ANILINE BLACK.**

This process is particularly suited for cotton articles dyed with aniline black, such as stockings, gloves, &c., on which a pattern in white is desired. The articles are washed and dried, or, if it be wished, bleached and then dried. They are then placed in an aniline mordant bath, which may be made as follows:

- Potassium chloride .......................... 2250 grams.
- Ammonium Chloride .......................... 2000 grams.
- Aniline .......................... 8000 grams.
- Aniline oil for blue and black .................. 5000 grams.
- Water ........................................ 100,000 grams.

In this bath they are allowed to soak for some hours, during which they should be repeatedly wrung out, so as to ensure the penetration of the liquid, after which they are washed and dried, and put into the dyeing chamber, from which they are removed when half dry. The pattern is produced by putting a discharge of aniline.