Dyeing, Bleaching and Finishing

THE PROCESS OF CARBONIZING.

Fig. 21 shows a German machine adapted for carbonizing both raw stock and piece goods. It consists of an iron framework covered with sheet iron and forming a rectangular chamber. When raw stock is to be carbonized the wool is spread in drawers which are placed in the machine, as shown in the illustration, the front of the machine being provided with a double door to allow the drawers to be inserted and removed.

When pieces are to be carbonized the cloth which has been previously soaked in the acid solution is run into the

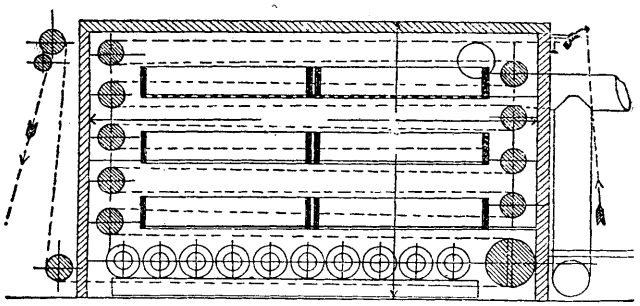


Fig. 21. Carbonizing Machine for Wool and Piece Goods.

machine in the open width, passing over the rolls from the top of the machine to the bottom, finally being delivered by the press rolls, shown in the illustration.

When carbonizing raw stock the air valves are arranged so that the moist air will be carried from the machine during the preliminary drying of the material. When the wool is dry the valves are closed and the heat kept in the machine so as to raise the temperature to the carbonizing point, the fan passing the air continuously over the heater.

Fig. 22 shows a carbonizing machine for piece goods which is built at Aix la Chapelle. The cloth passes to the top of the machine and then back and forth lengthways over rolls, as shown, to the bottom, during which passage it is dried and carbonized. The fan V forces the air from the heater *h* through the pipe *r* from which it passes through openings in the front of the machine into the drying chamber. The machine is so constructed that the drying chamber is completely shut off from the outside air down to the opening k under the cloth which is being delivered from the machine. The wall *w* at the back of the machine incloses only the lower layers of the cloth. A pipe leads from the wall *w* to the fan. The upper layer of the cloth which is not enclosed by the wall *w* is exposed to the outside air. The sides and bottom of the drying chamber are closed in.

Between the bottom *b* and the cloth is an opening *k* which extends across the width of the machine. The cloth passing over the rolls back and forth from one end of the machine to the other forms pockets or sacks *s* into which the air enters through the openings *d*.

The hot air is forced by the fan through these openings *d* into the upper pockets and through the cloth, as there is no other way in which to escape. The arrow shows the direction in which the air moves. The air passing through the upper layers is heavily loaded with moisture and passes out of the machine through the open top. In order to assist in removing the air, a small fan *v* is used. The air that passes down through the cloth is carried through the pipe at the back of the machine into the fan and used over again for drying purposes. A new supply of air to take the place of that which is driven out of the machine is obtained through the opening *k*, passing to the other end of the machine over the full width of the cloth. In this way the hot air which is not loaded with moisture is mixed with the fresh air into the machine, and thus serves to dry the cloth more rapidly. The advantages claimed for this machine are the economy of heat, rapid drying and an improved handle of the goods.

THE MANUFACTURE OF KNIT GOODS.

(Continued from previous page)

ankle, and heel and toe. The center part of the cam N effects the cutting and trapping of the outgoing threads, while an internal cam groove, represented by dotted lines, controls the action of the widening pickers.

Drum P carries cams or studs to regulate the yarn changes, the cams or studs being screwed in the correct position, as indicated in the diagram. The clutch hub 22 is operated and controlled from the head Q, and the adjustable parts R through the agency of the levers 24 and 23 and an intermediate spindle. The position of the belt slipper is controlled by the cam X. The machine can be turned by hand through the agency of the handle 12 which is attached to a crank screwed to the sleeve 7. The hose, as knitted, pass down the fabric tube Y, which keeps them in position during their rotation.—*Textile Manufacturer, Manchester, England.*

WET FINISHING OF WOOL GOODS.

In the finishing of woolen goods the wet processes are of the utmost importance. If the wet work is not well done it will be impossible to finish the goods properly. Difficulties that sometimes develop in the dry finishing and which the inexperienced finisher might think could be corrected there, often originate in the wet department where the remedy must be found. Goods that are not properly fulled and thoroughly cleaned cannot be properly gigged and sheared and are very likely to lack the handle and snappy appearance of a well finished fabric.

A greasy smell is not the only indication that the goods are not thoroughly clean. Cloth may be free from grease and yet contain a residue of soap or loose dye that will cause an objectionable odor and handle. Even when the goods are thoroughly cleansed in the scouring process, defects in the soap in the fulling will result in imperfect felting and a clammy feel when finished. When the fulling soap is right, all the foreign matter is taken up by the soap solution and carried off during the rinsing process.

I was once called to take charge of the finishing in a mill where the condition of things and the remedy applied showed the importance of soap in fulling. The goods were heavy weight cassimeres of medium grade. The man in charge of finishing had been requested by the superintendent to remain a few days to show me around. I was not a little surprised to find he was an old acquaintance with whom I had at one time been associated in the dry finishing department. I knew he had never had any very extended experience in the wet department.

The goods were largely of black, brown and blue grounds, with fancy effects of red, orange, peacock blue and mixtures. Upon examination I found there was a variation in shade and finish from side to center. For several inches on each side the cloth was teethy or threadbare, changing gradually

to a dull felted and muggy appearance in the center of the piece. The sides seemed to be overnapped and sheared, while the selvages in some cases were tender.

The fancy colors were dull and the fabric had a clammy feel. There was a large quantity of the goods on hand, shipment having been stopped because the commission house required the eight pieces in each case to match in shade, with a sample of the shade attached to the invoice. Owing to the wide variation in shade it was impossible to make up a case on that plan.

My predecessor claimed that the variation in the shade of different pieces was due to a variation in the picks and the weight from the weave room, and that the difference between the sides and the center of the cloth was due to uneven napping, which he was trying to remedy.

He first called on the mechanic to true the gig cylinders. As the mechanic could not see that they were out of true, there was nothing for him to do. Then the finisher conceived the idea of putting new teasels in the middle of the gig slats, leaving old ones at the ends, so as to gig more in the middle of the cloth, where it seemed to be needed. He also lagged the middle of the iron rolls on the rotary gig with strips of cloth to press the center of the piece against the cylinder.

I found the fulling soap became thin and watery during the fulling operation, instead of having a firm body. There was no indication of a lather during the washing, and the time allowed for rinsing was much too short. I increased the alkaline strength of the fulling soap 10 per cent. and used 5½ ounces of soap in place of 4 ounces to the gallon. I ordered the pieces to be run 40 minutes in the rinsing bath, so as to remove all the soap discharged. When the goods handled in this way were gigged, I removed all the laggings that had been put on the rolls and supplied the cylinder with slats having a uniform grade of teasels all the way across. Then I proceeded as though there had been no difficulty, and found that the shear cut the cloth evenly all the way across, there being no variation in the shade of the pieces. The sides and selvages were strong and the shading from side to center was perfect.

The difficulty with the goods had been caused by defects in the fulling and scouring processes. The cloth was fairly clean along the sides, as is apt to be the case when goods are imperfectly scoured. In the endeavor to clear up the middle of the cloth in napping and shearing the sides had been overdone and made tender. As soon as the cloth was thoroughly clean, all portions were affected uniformly by the gigging and shearing and the finish was uniform and perfect.

MEDIDA.

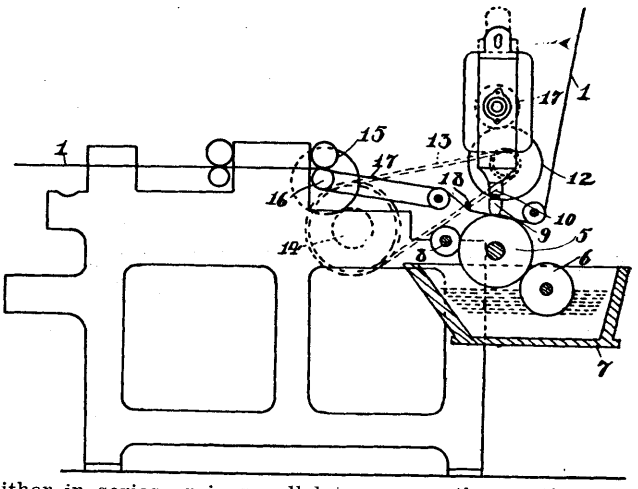
PRINTING VIGOUREUX WORSTED.

The illustration shows a gill-box arranged for printing different colors on worsted sliver for the production of mixed yarn, the process having been recently patented in this country. A sliver passing from the gill-box is conveyed to the dabbing device by conveyers 17 and 18. It then passes over a roller 5 which is permanently in contact with a color distributing roller 6 partly immersed in a color trough 7. A roller 8 removes the excess of color from the roller 5. The sliver 1 is brought into contact with the roller 5 from time to time by a reciprocating plunger 9 mounted adjustably on a spindle 10 which is reciprocated from a crank on the shaft of a gear wheel driven by gearing 12, 13, 14, 15, from a shaft 16, not shown. An apron conveys the sliver to a receiving truck.

In another arrangement a pad having an inked surface descends from time to time upon the sliver as it passes under it. This pad receives fresh supplies of color from an inking roller passing over its surface from time to time or in any other suitable manner.

Either the printing surface itself or the abutment member acting as a counter-surface, between which surfaces the fiber is temporarily held during printing, may be elastically mounted, either pneumatically or on springs, in order to yield resiliently to the printing impression or blow.

One or more of such printing devices may be arranged



either in series or in parallel to one another, acting on the band of combed fiber, or one or more of said devices may be arranged to act on parallel bands of combed fiber, which may then move on to subsequent requisite processes to form mixed colored yarn.

WASTE OF STEAM IN DYEHOUSES.

BY W. P. GOODALE.

Very few of the overseers in the dyehouses pay any attention to the steam used in their dyeing processes. The waste of fuel does not make any material difference to them. A dyehouse full of escaping steam, with clouds of same rising from every open dyeing machine, seems to indicate industry and a successful dyehouse.

The progressive dyer, however, realizes that it is a costly proposition to let the atmosphere absorb a large share of the coal pile. In many cotton mills where goods are dyed at a boil, as well as in many woolen and worsted mills, very few dyehouse overseers realize that no matter how much steam is forced through the open dye bath, the highest temperature that is possible to get is 212°. They may be using enough steam in one machine to supply three machines. Excess steam in the atmosphere means a total loss in dollars and cents and should be directly charged up to lack of knowledge of the textile process.

In the dyeing process temperature is, of course, very essential and should in all cases be controlled. With the large number of thermostatic devices on the market for regulating the amount of steam used there is no reason why the atmosphere around each open dyeing machine should absorb steam that has done no useful work. Every dyeing machine should be equipped with a thermostatic temperature controller of reputable make, no matter what temperature is required. With a device of this sort the steam valve will close at a boil, shutting off the excess steam that fills the air, and makes the average dyehouse a damp and disagreeable place to work in. Conditions in the average dyehouse should be controlled in order to contribute to the health and welfare of the workers. Buy less fancy fixings for the office and more common sense steam and health preserving devices for the dyehouse.

All pipes in the dyehouse should be covered with the best

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