Machinery and Appliances.

ROSSKOTHEN'S PATENT IMPROVED PIRM WINDER.

Mr. Joseph Stubbs, Mill Street Works, Ancoats, Manchester.

In the early days of the textile industries, pim winding was common, yet not universal and independent, with the growth of them. This arose from the fact that by the methods of spinning in vogue it was not possible to so prepare the weft as to fit it for direct use, or to make cops of tougher yarns or to wind them. It is well known that the bobbins used directly in the shuttles; hence those whose memories carry them back to the days of hand-loom weaving well remember that the little bobbin winder was an essential of every household that had its loom shop, or alternately the old woman who performed the same duty. One of this process being a necessity for the weaving of the shuttles used in the hand-looms. The machine used for pirm winding, if such it could be called, was the single thread winding wheel, which is not yet quite extinct. But even when in use, small cops could be made for the small shuttles of the hand-loom the forces of prejudice and habit were so strong that the winding of the web upon pims was continued, often because it was thought to improve the weaving quality of the web if the latter was first saturated in soap and water, which it admitted of being wound upon the wood pims. But in all plain weaving this has long ago disappeared, excepting here and there in a weaving mill where the hand-wheel is retained to supply the small quantity of picking and weaving web required by the weavers.

Still there is a considerable section of the different textile trades, and we may add that these are increasing in dimensions, where pirm winding is a necessity. This section to which we particularly refer is the coloured goods branch of the cotton trade, which is mainly located in and around Manchester, at Accrington, Pemberton, Pateley, Swinton, Radcliffe, Bury, Hyde, Rochdale, and other places in South Lancashire. The extension of the chintz trade in Preston and Blackburn and their outlying villages, has led to a great increase of the same process in those localities. In Nelson, Barrowford, Colne, and Todmorden, a considerable trade has sprung up in coloured goods, in which pirm winding is a necessity. In the Yorkshire districts, Halifax, and South, the system is in extensive use, so that simple as the process is there is a considerable field for the exploitation of the inventor who can surpass previous efforts in this direction, in which, to say the truth, no great results have been achieved, owing probably to the fact that the very simplicity of the process has created the impression that nothing more was required. Perhaps also the field open for such a machine was not considered sufficiently large to justify the expenditure of either genius or time by the reward it was likely to give in return. A careful review of what has been accomplished in pirm winding machines would dispose of the first of these notions, while the enumeration of the districts in which its use exists and is extending would dispel the second. But those given are in the cotton trade alone. In addition, there are the various villages of use offered by the woollen, worsted, silk, and linen industries, in all of which wefts on pims are used.

This comparative neglect of the pirm winding process by inventors has to a considerable extent been attributed to a machine which is being introduced by Mr. Joseph Stubbs, machine maker, Mill Street Works, Ancoats, Manchester, whose reputation as a maker of winding machines is widely known.

The machine in question is the invention of Mr. Rosskotten, a gentleman already known for his improvements in the winding branch of the textile industries. It is to a great extent original in principle and design, differing widely from any of the kind hitherto constructed. The first important feature in it is the substitution of strong Rabbeth spindles for those ordinarily employed. These are fastened on strong girder rails, and are driven from two tin rollers precisely as in a ring frame. Each spindle is furnished with a fast and loose whareve, and a separate automatic stop motion. The latter on the breaking of a thread transfers the driving band by suitable mechanism from the fast to the loose than three or four turns during the descent, the faller rises much more slowly, and during its upward movement the winding is mainly done. This process makes a cop which is least likely to be damaged or broken in the weaving process, and is the most easily got straight or "readied", with the minimum of waste if ruffled. The inventor of this machine has very cleverly imitated this structure of the mule cop, by a simple arrangement causing the thread guide to make a quiet descent and a slow upward movement. During the former about one-fourth of the length of thread that is wound during the ascent of the guide is wound on the pirm. Thus all the advantage of a well-built mule cop is secured for the pirm, including the very considerable one of a great reduction of waste as compared with that which is hitherto been regarded as unavoidable in pirm built in

ROSSKOTTHEN'S PIRM WINDER.—MR. JOSEPH STUBBS, MANCHESTER.
COTTON DRYING CYLINDER.—CONSTRUCTED BY MR. LANG BRIDGE, ACCRINGTON.

(For description see Page 48.)
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Weaving, Dyeing, Printing, etc.

Notes on Recent English Patents in Dyeing and Dyes.

Messrs. Brooke, Simpson, and Spiller produce new direct dyeing colours from three bases, which have been known previously, but not hitherto used for this purpose. These are: para-xanoxo-ortho-thiodine, C₆H₄(N₃H₂)(NH₂)₂⁺ N⁺N⁻O-C₂H₅(CHOH)₂(C₆H₅)(CH₃)₂ C₆H₄-para-xanoxo-ortho-thiodine C₆H₄(CH₃)(NH₂)₂⁺ N⁺N⁻O-C₂H₅(CHOH)₂(NH₂)₂ C₆H₄-para-xanoxo-ortho-thiodine C₆H₄(NH₂)₂⁺ N⁺N⁻O-C₂H₅(CHOH)₂(NH₂)₂ C₆H₄. All of which were described by Linpricht in 1854. These are dissolved in the usual way, and the product is then combined with phenols and amines to form colouring matters; thus, for instance, the ordinary combination of hydroxy-sulphonic acid and sodium nitrate, combined with sodium sulphate, provides the other base to yield similar products. The specification is silent as to the proportions of ingredients, except that they will dye unadorned cotton.

Graemiger's invention for dyeing cotton or other fibres is somewhat novel. Many attempts have been previously made to dye loose organic dyes by boiling the dyes through them, but Graemiger forms the fibrous material into the cotton of the pump which is then worked in the dye liquor.

azo-colours are combinations of an azo compound which has been diazotised with another amine, a phenol, or its sulphonic acids. Thus, for instance, the ordinary combination of dianisyl-phenylamidine with diphenyl sulphonic acid. A recent patent of the Farbwerke March is described the use of dia-oxyphenylamine in place of the naphthol acid, whereby blue shades of red are obtained. This, for instance, dia-amino and dia-oxy-naphthaleine sulphonate acid are combined; a dye-stuff is obtained which resembles acid magentas in the tints; it dyes. This patent specifies the use of no less than twenty-one amines, with which combination can be made. We wonder how many of these have been made, and how many would have to be discarded if the validity of the patent were contested. The state of our patent law is perplexing. The chemical patents, for instance, describe a process in detail, and the patentee is then left to his own devices as to the extent of his rights. The state of things will only be altered when our patent laws require chemical patents to deposit samples of the products they patent.

Ever since indigo was first used as a dye—of which history has no record—intermediaries of processes or methods of rendering it soluble have been numerous, and it may be reasonably supposed that the process is not yet to be seen. Yet out of the many numerous methods which have been described in English patents, how many have actually been used? A few of the most favourite ideas of inventors have been to produce preparations of indigo which require water to make a dye vat ready for use. A Kendal gentleman describes four methods of attaining this object. In the first he takes powdered indigo and mixes it with zinc dust, warm water, and balsam of soda in certain proportions. In the second he uses powdered indigo to be dissolved in water to form a dye vat, and in the third he gives a process for making a dye vat in one operation. The other two methods consist of making a solution or a paste. In dissolving the mixed indigo powder a little water is used, and the use of an acid to be added. It is then to be done when necessary in an acid bath.