Machinery and Appliances.

PATENT STOP-MOTION TWISTER FOR THE PRODUCTION OF KNOPPED, LOOED, CURLED, AND OTHER FANCY YARNS.

Messrs. John Sykes and Sons, Tipton Ironworks, Huddersfield.

It is about 15 years since the present writer drew the attention of manufacturers and the trade generally to the comparative neglect with which the production of fancy yarns was treated in this country, and the vast field which lay open to them in this direction for obtaining an endless variety of beautiful and rich effects. He pointed out that almost all efforts up to that time were devoted to the production of uniformity of effect on both the yarn and cloth; the aim being to make the thread as level and uniform as a fine drawn wire, and the fabric smooth as a sheet of writing paper. It was pointed out that all the beauty of variety was lost by thus travelling in the rut of precedent, while by the departure indicated, and the introduction of colour, an incalculable number of variations could be made, and that those who could handle the materials with which they were dealing with good taste and skill would be assured of a great success.

More than one firm immediately adopted the suggestion and put it into practice, much to their benefit. Since then a great change has taken place, and from the variegated yarns that have been rendered available manufacturers have produced fancy fabrics in abundance. The plain, dyed, checked, and printed, on which fashion's changes had been mainly rung, have since been reproduced, but in such a changed form as to present a more beautiful and attractive appearance than was ever obtained in the past, by a kaleidoscopic variation, which as yet shows no signs of exhaustion, and of which the public exhibits no symptom of becoming tired. As yet this field has been mainly worked by the woolen and worsted trades, and notably by the latter, for which it is especially suitable and by which it has been correspondingly apreciated. In the production of dress goods for the gentle sex it has been of the highest service, readily yielding variety to suit every imaginable taste. In the cotton trade there is a wide field of a like kind in which, as yet, very little use has been made of this style of yarns. In the northern half of the temperate latitudes, woollens and worsteds are mainly worn, but in the warmer half of the same, variegated cotton fabrics, produced in the manner indicated, would, we believe, find an enormous field of consumption. Let these having connections with the markets of these regions make the experiment, and we think their enterprise will not go unrewarded. But it may be asked—where and how are these variegated yarns in cotton to be obtained? There are several firms that produce them in woolen, worsted, silk, and union materials, and if the demand arose they would be equally ready to produce them in cotton. Failing this, however, there is little difficulty in establishing the manufacture of them by each man in his own establishment. The following is a description of a machine on which an endless variety can be produced.

The machine to which we refer in its main features was described in The Textile Mercury of November 16th, 1889. It has since been modified in its details to permit of the production upon it of the variegated yarns to which reference has been made above. As we have observed before, the winding of yarn is a process common to all the textile industries. It is, perhaps, the simplest of all the series, yet it varies considerably according to requirement, and is modified also by the differences of material. Single thread winding is its simplest form, this being for the purpose only of facilitating the attainment of a parallel arrangement of the threads, as seen in a warp. In doubling-winding much more care is required, and the process becomes more complex. This for the purpose of obtaining a parallel arrangement of two or more threads, the tension being required to be perfectly alike in order to permit of their being twisted together in an even manner, that is, in which the threads shall be mutually twisted round each other; not "cork-screwed," as when one preserves a straight line and the other is wrapped around it. All practical men know how objectionable this is in the manufacture of any class of doubled yarns. Doubling-winding requires the nicest adjust-
is the ordinary twisting frame, having spindles carrying combined fast and loose wharves, and driven in the usual manner. Fig. 2 is of the wood frame, which will be seen that the driving band is carried over a tension pulley, mounted on a stud projecting from one end of the lever \( v \), which is pivoted near the middle. The opposite end \( v \) constitutes the weight of the machine, and a pin projecting from it affords means of attaching a connecting-rod, the opposite end of which is attached to one end of a drop lever \( s \), pivoted to a bracket bolted to a rail, and carrying on its opposite extremity the handle \( r \). On the extremity of the drop lever opposite to that carrying the handle is a small arm \( s \), which, when the machine is being twisted and wound upon the spindle, rests upon and is supported by a catch projecting from the side of a weighted lever \( s \) hinged at its upper extremity to the pedestal at \( c \). The latter lever carries a stud upon which is mounted the cranked lever \( k \), the lower end of which carries a stud, which enters a slot formed in the arm of the lever \( t \), mounted upon the rocking shaft \( s \). This shaft extends the length of the machine. The upper end of the cranked lever is connected to a plate \( p \), having a horizontal traverse \( r \) on which is carried, and sliding to \( r \) the opening \( n \) in the pedestal \( r \). This plate constitutes a grid, having openings cut in it to correspond with the number of tubes it is intended to employ. These wires \( s \) are arranged above and loosely supported in the pedestal \( s \). The two lines of draw rollers are arranged as shown \( s \), and the traverse \( r \), which is hinged to the pedestal \( r \), and having its lower extremity resting against the curved end of the drop lever \( k \). The rocking shaft \( s \) is also hinged upon the plate \( p \). On the shaft is the driven roller \( t \), which gears into a pinion \( w \) carried upon a stud projecting from the side of the machine. One end of a rod is connected eccentrically to the face of this pinion, whilst the opposite end is attached to the lower end of the lever mounted upon the rocking shaft \( s \). The revolution of this pinion rocks the shaft by the means we have described.

The above description will give the reader a fair idea of the structure of the machine, and the novelty of its chief parts. We may now describe its action. The bobbins are mounted, as shown in the creel, and the threads may be drawn over suitable guide rails if so desired. They are, however, shown as passing straight to the take-up plate \( r \), which is fastened backward, and down through the opening \( n \) in the pedestal \( r \). The two lines of draw rollers are arranged as shown \( s \), and the traverse \( r \), which is hinged to the pedestal \( r \), and having its lower extremity resting against the curved end of the drop lever \( k \). The rocking shaft \( s \) is also hinged upon the plate \( p \). On the shaft is the driven roller \( t \), which gears into a pinion \( w \) carried upon a stud projecting from the side of the machine. One end of a rod is connected eccentrically to the face of this pinion, whilst the opposite end is attached to the lower end of the lever mounted upon the rocking shaft \( s \). The revolution of this pinion rocks the shaft by the means we have described.

Before closing we may add that the makers of this machine have now taken out their patent application for this machinery, and have been instructed by all the known authorities, who have examined it, to prepare it in this improved shape for general exhibition to the public. We understand that the makers have persevered in their efforts, and are now ready to exhibit this new and improved form of the machine in such a manner as will meet the occupation of much more space and the expenditure of more capital.