Machinery and Appliances.

A NEW DOBBY LATTICE LAG.

MAKERS: MESSRS STONE and BURNETT, BOW LANE, PRESTON.

The dobby, a well-known modification of Jacquard's famous machine, has come into very extensive use in Lancashire and Yorkshire during the past 25 years. Many inventors have brought their skill to bear upon its improvement, and the consequence is that there are quite a number of types, most of which possess some special excellence. But it is not to the machine itself, so much as to a principal adjunct, that we wish now particularly to refer, namely, the lattice. This is an improvement in the construction of the lattice lags, whereby many of the defects and weak parts of the old plan are quite obviated.

The ordinary lags of the dobby lattice are constructed of wood, and consist of narrow strips perforated with holes for the reception of pegs in which the design is formed, and which through the ordinary connections operate the healds according to requirement. The lags, being of wood, are very considerably affected by atmospheric temperature, the consequence being that the pegs, being rendered loose, are liable, and do, frequently drop out from their places, and if not immediately observed, which is rarely the case, the pattern is damaged by, defective shedding which results. A further difficulty often arises in the wood pegs wearing down in their length, which causes the jacks to lift the healds insufficiently, thereby exposing the threads of the warp, carried in that particular heald or leaf, to great friction from the passing shuttle with a liability to throw it out and do other damage. Broken, missing, or worn pegs, as will thus be seen, may thus do a considerable amount of mischief in the way of spoiling cloth. But in addition to these, there is another defect, this is the liability of the lags to split. They have through, pegs to bear the pressure of the weight of the healds whilst being lifted, and, as a consequence, frequently split, because in the ordinary construction, each peg is acting the part of a wedge. From this cause also time is wasted and work is damaged.

A knowledge of these defects has induced Mr. W. G. Thomson, of Halifax, to devise a remedy for them, which he has accomplished, as shown in our illustrations. This is a new lag, which is constructed in the ordinary manner in the first instance, but is backed with a metallic plate, as shown on our illustrations. As will be seen, it is attached by three small screws, each passing through a small groove, one at each end and one in the middle. The attachment of the plate is sufficiently loose to permit of its being pushed backwards and forwards by the finger or thumb, by which movements the peg holes in the lag are covered or uncovered as the case may be. Fig. 1 shows the improved lag open or with the holes uncovered; fig. 2 exhibits it closed as in work. It will be observed that by this arrangement it becomes possible to use iron pegs, which could not be done before, owing to their much greater liability to drop out. This is now entirely obviated by forming them with heads as seen in the one elevated in fig. 1. The hole in the lag is countersunk to fit the head of the peg, so that it can sink sufficiently to allow the plate to slide over it and securely hold it in position from the back.

The lags, it will be obvious to our practical readers, can be pegged on this plan much more quickly than in the ordinary way; and the pegs cannot drop out either from the front or back, as the head holds them from going one way and the plate from going the other. The lag itself is relieved from all the destructive force of the peg acting as a wedge constantly tending to split it; the sliding plate now bearing this force without risk or damage. All that is now necessary is for the person entrusted with the duty of pegging the lattices to drop the metallic pegs into their proper holes, push over the slide, and they are at once secured. There is practically no point of wear now left, excepting the couplings, which will, however, last for years.

Manufacturers of fancy goods will appreciate the advantages of this improvement, relieving them as it will from so many risks of defects, and the consequent rejection of valuable goods by the merchant when these occur. These, of course, have to be sold as "jobs" at a considersacrifice from the proper value and much below cost of production.

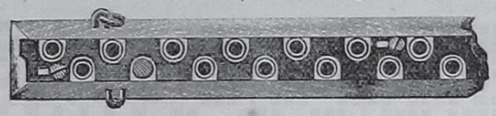


FIG 1.

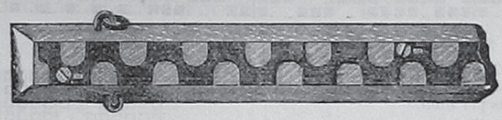


FIG 2.

Mr. R. K. Warren, secretary of the Mobile Mills Co., Mobile, Ala., U.S., writes:—"We have recently organised the Mobile Mills Co., and propose to equip our mills with the very best and latest improved cotton machinery, and also to employ the best skilled cotton manufacturer we can find to superintend the operations of the mill. Our authorised capital is 500,000 dols., but the total sum has not yet been subscribed. We hope to be ready to begin construction by February 1st. We want to find out the best places to buy our machinery."

Under the title of "Hamburg Wool Combing Co." a joint-stock company has been formed, which takes over from the Leipsic Wool-combing Company the wool-combing factory, which is in course of erection at Wilhelmsburg, near Hamburg. The capital, of which the Leipsic Co. has half, amounts to 3½ millions of marks.

The conditions necessary to successful rope transmission are properly grooved iron sheaves and a rope of uniform diameter. The sides of the grooves which have contact with the rope should be inclined at an angle of 45 deg. with each other. This affords the greatest resistance to slipping, consistent with a minimum amount of wear, when the groove is carefully turned. A usual mistake in the form of groove consists in making it round bottomed and slightly smaller than the diameter of the rope. This form of groove has never failed to wear out a maximum amount of rope in a minimum amount of time, and its use is largely responsible for numerous failures of ropes to drive satisfactorily.

IMPROVED DOUBLE LIFT JACQUARD HARNESS.

MR. JAMES MCMURDO, JACQUARD MAKER, MILES PLATTING, MANCHESTER.

Jacquard harness is, perhaps, to the uninitiated one of the greatest puzzles in a weaving shed. The stranger who is unfamiliar with the textile arts is bewildered with the multitude of pulleys and wheels and straps in motion, and the noise of the working machinery. But when he is placed beside a loom and sees damask

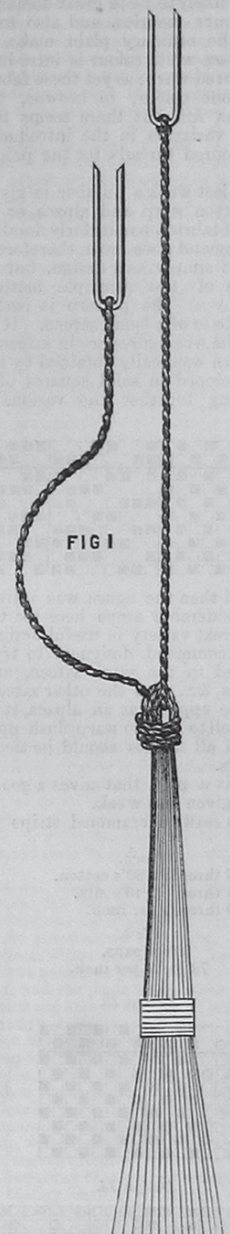
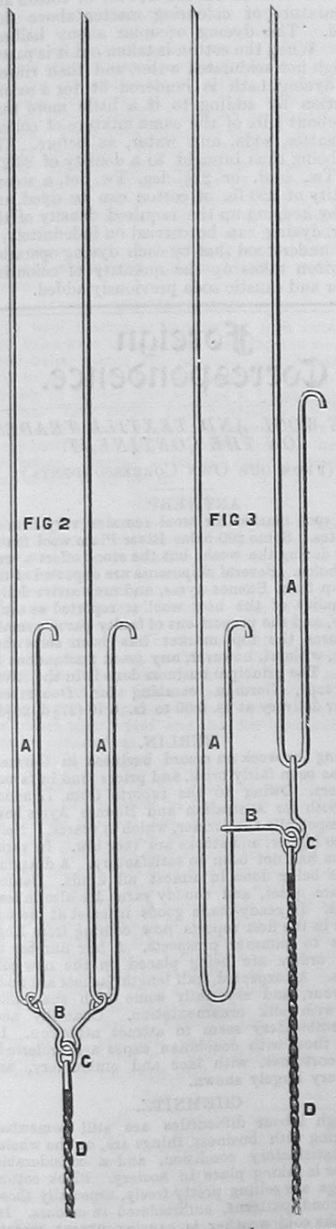


FIG I

figures forming in the fabric, as if by magic under his eyes, his faculty of wonder is greatly excited. When, on inquiry, he is told that the work is done by the machine above, through the to him confused mass of cords depending from it, his surprise certainly undergoes no abatement. To the initiated, on the contrary, all this is clear enough, and easily comprehended. The machine, its capacities, excellencies, weaknesses, defects, and the complex arrangements of its harness, are also well known, and form no puzzle to the skilful weaver trained in this branch of the textile art.

One of the greatest troubles of the weaver

on a jacquard loom is probably the breakage of the harness cords, and the consequent defects that are made in the cloth, if it should be unobserved for any length of time. Either the defect must be passed, which will deteriorate the quality of the cloth, or the portion containing it must be unwoven, which will entail both labour, waste of material, and loss of time, and, consequently, a diminished production. Or there is an alternative often followed, which is to let the defect go on and employ the menders to repair the damage. The expense of



this practice has for some time been a growing one, as the competition amongst employers for weavers has caused a relaxation of the care that was formerly exercised over their work. In these circumstances it has been desirable to eliminate as much as possible of the mischief.

Appreciating the position of this matter correctly, Messrs. Hancock, Rennie, and Hudson, of Morley, have devised an improvement in the style of the neck bands of harness, which has been tested and proved to accomplish the desired result. Fig. 1 of our illustrations shows the ordinary style and arrangemement of the neck bands, one being slack and the other tight. The necessity of using two bands and the constant alternation from a slack to a tense, and from a tense to a slack condition is very destructive to the material of which the bands are composed. The presence of two bands and the large knot at the head, all having to be confined and to work in a very limited space, necessitates a very undesirable amount of friction, and consequently of the wear and tear to which we have already referred, and which it is so desirable to obviate. This has been done by the invention now under notice, and which is illustrated in figure 2. As will be seen, it enables the work to be done with one neck band in place of two, and dispenses with the large knot at the head, thus making much more room in the harness for the passage of the heads without the previous friction. The advantage of this will be obvious. With the improved arrangement, if a neck band comes down the weaver cannot possibly weave until it is repaired. This is a principal feature of the improvement, and it is clear that it must prevent the making of a good deal of bad work, and so obviate both the necessity of unweaving or of passing the fault, and subsequently repairing it. Fig. 3 shows the position of the improved arrangement when one wire is lifted. As will be seen from figs. 2 and 3, the improvement consists of two upwright wires A, having at their lower extremity a double loop on which the link C is passed, and to which again the neck band D is secured.

To our practical readers the merits of this improvement will need no commendation beyond what we have already given in the course of the preceding description. For any other information they may apply to Mr. James McMurdo at the above address, who will be pleased to afford it.

Bleaching, Dyeing, Printing, etc.

NEW COLOURING MATTERS.

During the past two months a number of new colouring matters have been placed upon the market by various firms, to whom also we are indebted for samples to test. Some of these can only have a transient existence or find at most a limited use; others, however, have all the elements of permanency, and dyers will do well to give them some attention.

Some of our English manufacturers have of late been more energetic than formerly, and we have several new dyestuffs to notice from them. From Messrs. Read Holliday and Sons, of Huddersfield, we have received samples of a

TITAN PINK,

a new dye which can be dyed direct on unmordanted cotton. It is a very strong colouring matter, ½ per cent. being sufficient to produce a fairly deep pink; curiously enough it does not give any dark shades in a satisfactory manner, and to use more than ½ per cent. would practically be a waste of material. The shade of pink obtained is a slightly blue pink, not very brilliant, and in this respect it is inferior to Erika, than which, however, it possesses the advantage of being faster to light acids and alkalis. Titan Pink is best dyed on cotton, in a bath containing Glauber's salts, or salt and soap, an alkaline bath not suiting this colour very well; it should be boiled in this bath for one hour, then treated afterwards in a soap bath.

For calico printing it will be found useful. It is applied very simply; a colour is made with the dyestuff and starch thickening, and it is printed, steamed well, and soaped.

This dyestuff is sent out in the form of a deep brownish-red powder, which is quite soluble in water to a reddish solution. Sulphuric acid added to this changes the colour to a bright magenta, while the addition of hydrochloric acid causes the formation of a red precipitate which rapidly settles out, leaving the liquor almost colourless. Caustic soda gives a dark red precipitate in a brownish yellow liquid.

Mr. M. E. Bowker, of Lower Broughton, Manchester, has sent out

ECLIPSE RED 4 B,

a new dyestuff for cotton, having a great resemblance to the familiar benzopurpurine 4 B. It is dyed on to unmordanted cotton by the same methods—boiling in a bath of soap and soda, or other alkaline salts. It yields very brilliant shades of red, rather deeper, brighter and more scarlet in tone than benzopurpurine 4 B. In its properties—action of acids, alkalies, and light—it is almost identical; it is, if anything, a little more resistant, but the difference is very slight.

CLAYTON YELLOW.

This is a new direct cotton colour sent out by the Clayton Aniline Co., of Clayton, near Manchester.

It dyes unmordanted cotton in a bath containing soap and phosphate of soda. Giving shades of yellow rather brighter than those obtainable with chrysamine, and being freely soluble in water, it offers some advantages over that colouring matter. It is quite fast to soaping and washing, not bleeding in the least; and as far as we have been able to test it in an October and November light, it is pretty fast against that destructive influence.

It can be used in calico printing, and, having no tendency to bleed into the whites on steaming, will be found useful in that branch of textile colouring.

The colour on the fibre is turned orange by hydrochloric acid, while nitric acid first changes the shade to orange, and then bleaches it. Acetic acid turns the colour orange, and caustic acid also turns it scarlet. The dyestuff is a yellow brown powder soluble in water to a brownish yellow solution; also in alcohol. Acetic acid dissolves it with an orange colour. The addition of hydrochloric acid to the aqueous solution turns the colour orange, and renders it turbid, while strong sulphuric acid forms a yellowish-brown solution. Caustic soda added to the aqueous solution gives an orange scarlet precipitate. In common with the other yellow dyes of this class, Clayton Yellow acts the part of a mordant for the basic dyes—such as a magenta, safranine, and brilliant green, and by such combinations a number of brilliant shades can be obtained; unfortunately, while they are very fine they are not fast to washing or soaping, and we do not recommend these compound shades at all.

The Hebburn Colour Co., of Hebburn-on-Tyne, have sent out

HEBBURN FAST BLUE.

This is not exactly a new colouring matter in the strictest sense of the term, being one of the numerous indulines, but the company have much improved the process of making, for which improvements they have secured patents. Thus the dyestuff yields rather brighter and deeper shades than the indulines hitherto put upon the market. Hebburn Fast Blue is adapted only for wool dyeing, in which it gives fine shades of blue; 2 per cent. gives a good full indigo blue, while 4 per cent. gives a full deep shade of navy blue. The method recommended by the Company, and which gives good results is the following:—Make a dye-bath with the colouring matter and 4 per cent. of soda crystals. Enter the wool, raise to the boil quickly, and continue boiling for one hour; then add 4 per cent. of sulphuric acid, diluted with a little water, and then in small quantities at a time 3 parts of sulphate of alumina for each part of dye-stuff used; the addition taking one hour, boiling well all the time. Boil 15 minutes longer, and the dyeing is done and the goods may be finished as usual. The colour when dyed is quite fast to acids and soaping and fairly fast to light.

The Farbenfabriken vorm. Fr. Bäyer and Co.