

Machinery and Appliances.

THE ELM SPINNING CO.'S NEW MILL, SHAW.

Messrs. JOHN HETHERINGTON AND SONS, LIMITED, Vulcan Works, Manchester, contractors for all machinery.

The most prominent feature of the cotton trade at the present day distinguishing it from that of the first half of the present century, is undoubtedly the introduction and enormous development of the joint-stock principle in working the business. For some time the first experiment that was made on these lines, which was at the Sun Mill, Oldham, was not encouraging, and certainly did not invite imitation. It was not until, when on the brink of ruin, the concern was put into the hands of the late Thomas Schofield, a careful, shrewd,

proof principle, and fitted with automatic fire extinguishers. In fact no country in the world can shew a title of the grand industrial palaces such as are to be found in south Lancashire, devoted to cotton spinning.

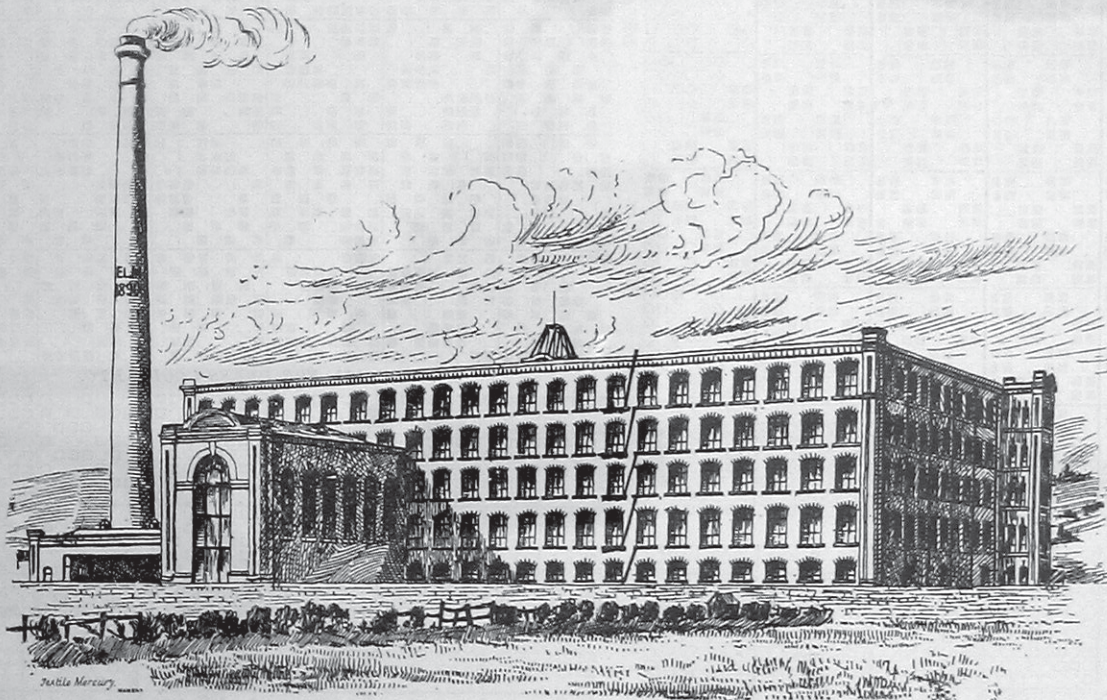
We have pleasure in placing before our readers some illustrations of one of the most recent of these, the Elm Spinning Company's new mill at Shaw, near Oldham. This mill, the erection of which has just been completed, consists of basement and four storeys.

The mill is being furnished throughout by the eminent firm of Messrs. John Hetherington and Sons, Limited, of Manchester. The cellar will, as usual, be devoted to storage and conditioning purposes. The first floor will contain the mixing areas, and the opening machinery. The latter will include two creeper feeds, 40 feet long, serving two combined, exhaust, opener and lap machines. Each of these trunks will have five cellular dust sections, of the most recent construction. There will be four single scutcher breakers, and four single beater finish-

this room. The spindles in this room alone would thirty years ago have been considered sufficient to equip a very respectably sized mill. The third spinning or top room of the mill will be furnished with 22 twist mules of 1 $\frac{3}{8}$ in. gauge, each containing 1,075 spindles, or a total of 23,628. The whole will constitute a grand total of 73,052 spindles and preparation.

From the construction and equipment of this mill it will be obvious that the Elm Spinning Company will start operations, so far as these aspects of their business are concerned, quite prepared to take up a commanding position amongst the ranks of their competitors.

Messrs. Hetherington & Sons commenced delivering the machinery on the 9th inst., and are confident that they will complete the delivery in three months, which will, we believe, be an almost unprecedented accomplishment. This is only one of many mills Messrs. Hetherington and Sons, Limited, are engaged at the present time in equipping. Amongst others may be mentioned the "Yew" at Heywood, which will



THE ELM SPINNING COMPANY'S NEW MILL, SHAW.

practical man, that it began to prosper. A large adverse balance was wiped off, and dividends began to be paid, small at first, but which rapidly grew into large dimensions, exciting the wonder and even amazement of outsiders. This was the stimulus that was needed, and it took effect. Companies were rapidly established for building new mills, and old ones were turned over to purchasers for the purpose of "floating," and so the movement has continued to the present time, until it is safe to say that of the present 44 million spindles, more than half of them belong to joint-stock companies. As competition has become more keen, "turnover concerns" have declined in favour, each company feeling it safest to commence operations with an entirely new mill and plant of machinery, combining the very latest improvements, and, if possible, containing something of that nature not to be found in any other establishment. This competition has led to the erection of numerous magnificent mills, admirably adapted for the purpose, being strong, firm, with lofty, well ventilated and lighted rooms, nearly all constructed on the fire-

ing lap machines, with piano motions; and all with the firm's recent improvements, many of which have been described in these pages. The card room will be furnished with 69 revolving flat carding engines, having 50 in. cylinders, 45 in. on the wire, and fitted with the firm's patent grinding motion. The same room will contain the drawing and speeds. The former will consist of eight frames of three heads of seven deliveries. There will be eight slubbing frames, each containing 86 spindles, and 14 intermediates of 132 spindles each. Of roving frames there will be 26 of 172 spindles each, and four of 252 spindles, the latter being double driven. All these contain numerous improvements in details, which have been fully described in our articles upon them, and to which the reader is referred for particulars.

Coming now to the spinning rooms: in the first will be placed 16 weft mules of 1 $\frac{3}{8}$ in. gauge, each containing 1,296 spindles, or a total of 20,736. In the second spinning room will be found 22 weft mules of the same gauge as the preceding, but each containing 1,304 spindles, making a total of 28,688 spindles in

contain about 112,000 spindles; the "Minerva," Ashton, 86,496 spindles; and the "Milton," Mossley, 80,000. Also Derby Mill Spinning and Manufacturing Company, Limited, Heywood (about 20,000 spindles, spinning 60 twist, and 80 weft, Bolton counts.) The Apethorn Spinning Company have just had one mill completely furnished by this firm, and a second is nearly done; the two combined will contain about 40,000 spindles. For the newly-projected Castle Mill at Stalybridge, which will contain 80,000 spindles, they have been awarded the order for the carding engines, that for the spindles going to a local firm. For home and abroad Messrs. Hetherington and Sons, Limited, have now on hand orders for over 500,000 spindles and preparation.

WOOLLEN BRAID IN CHINA.—The Chinese use woollen braid so extensively for their pig-tails and clothing that its import is considerable, and amounts to the value of £800,000 a year. At Peking last year the receipts were 30 per cent. higher than in 1889. We regret to learn that a great part of this trade is now done by Austrians and Germans, and our manufacturers should bestir themselves in the matter. It is used principally in black, red, green, or blue, and is sold at from 2s. 6d. to 3s. per box, containing 144 yards.

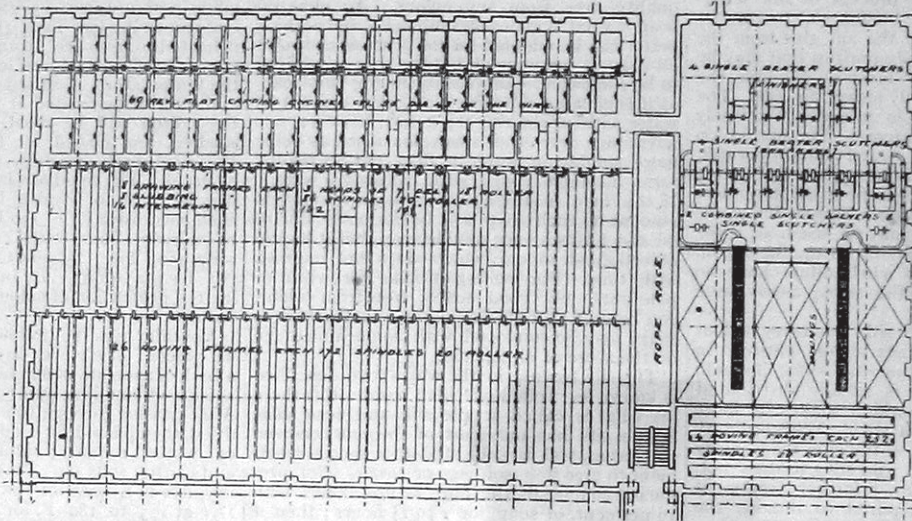
A NEW AUTOMATIC SAFETY SHUTTLE GUARD.

To people familiar with the interior of power-loom weaving sheds it is well-known that there exist, and have always existed since the invention of the power-loom, chances of the shuttle in a working loom being deflected from its proper course through the warp shed, and of its striking a weaver at an adjoining loom. The causes of this occasional erratic flight we need do nothing more than very briefly glance at. It may arise from a broken thread sticking in the warp-shed; a damaged or far-worn picker; or from the loom being out of order in any one of numerous possible ways. Sometimes the cause is very obscure and difficult to discover, and

objections are just ones, though certainly not to all of them. They cannot, however, possibly be advanced against the one we illustrate herewith.

This guard, as will be seen, consists of an iron rod carried in two brackets attached to the slay cap. The bar is bent or cranked at each end, and its extremities are inserted into the brackets. One of the brackets, as shewn, is furnished with a spring, and the end of the bar entering therein is fitted with a washer, against which the spring presses. The two brackets each have a groove or slot cast in the sides, of a size to receive a sufficient portion of the diameter of the bar to hold it firmly therein against any effort a flying shuttle could make to raise it when attempting to leave the shed.

be in it some latent defect, when it can be replaced for less than 1d. Should it merely prove too weak, an additional washer upon the guard end will restore it to efficiency. The brackets are slotted at the back, which renders them adjustable to any size of shed that the character of the work in the loom may require. The guard works with the greatest efficiency in all widths and kinds of looms, and, owing to its simplicity, the ease with which it can be raised out of the way, (whilst automatically readjusting itself), its application is eagerly welcomed by the weaver, as the security arising from its use is perfectly obvious. Its great recommendation to the manufacturer is its cheapness, and the security it will give him against the possibility of claims



THE ELM SPINNING CO.'S NEW MILL, SHAW: PLAN OF PREPARING ROOM, ETC.

1st Spinning Room contains 16 Self-acting Mules, each 1,296 spindles 1 1/2 in. gauge	= 20,736 spindles.
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the loom in this state, if kept at work, becomes a real and very serious danger to the weaver at the next looms. But to be forewarned is to be forearmed, and in these cases the operative in danger usually gives the line of the shuttle's flight a wide berth, and thereby obtains a degree of safety. The most serious injuries, however, undoubtedly arise from the

Fig. 1 shows the guard out of the working position and in the one in which the weaver would place it when wanting to draw in any broken threads. In this position it will be observed that the ends of the guard are out of the slots of the brackets and against the polished sides. Immediately the loom is started the movement of the slay causes the

for damages for injuries arising from the flying out of the shuttle. For prices, etc., application should be made to Messrs. Cottrill and Co., Britannia Mills, Whit-lane, Pendleton, or to Messrs. Robert Hall and Sons, Bury. Mr. W. Brown, Messrs. Cottrill's mechanic, is the inventor.

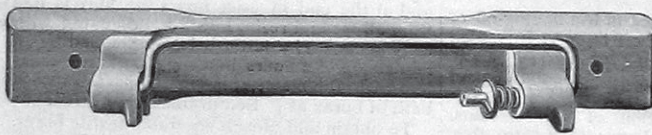


FIG. 1.



FIG. 2.

casual discharges of the shuttle from the shed, owing to matters that are easily discovered and rectified. The most frequent of these is the broken warp thread. In the Factory Inspectors' Report recently issued no reference to this subject is made this time, the inspectors perhaps thinking that sufficient has been said regarding it for a season. But whether the subject be commented upon or ignored, every person familiar with the process of weaving knows that the erratic flight of the shuttle is a constant danger, and that it will not be entirely obviated until good shuttle guards have been adopted and applied to every loom. Naturally many manufacturers are averse to the expenditure this will entail, while others object that no efficient, practical, and unobjectionable guard has yet been invented. The shuttle guards are stated to be either ineffective, complicated, obstructive to the weaver, or too costly. It may be admitted that to many of the inventions brought forward under this name these

bar to slide from this position into that of "on guard," shewn in Fig. 2. It is thus perfectly automatic, needing no attention from the weaver to give it efficiency. The appliance, moreover, is so sensitive that it will not permit the loom working a couple of picks without taking up the position of duty, which ensures the safety of every weaver near, as with the guard in working position the shuttle cannot escape. On the stoppage of the loom for drawing in a warp thread the weaver, in order to remove it, has only to push the guard slightly on one side, when the spring yields, and by the slightest effort the guard is lifted to the position shewn in Fig. 1, out of duty and out of the weaver's way.

This guard, it will thus be seen, is the essence of simplicity in its working parts; there is nothing that can get out of order except the spring, which, however, being of good material, may be expected to last as long as the loom remains at work, unless there should prove to

THE President of the Silk Association of Great Britain and Ireland announces that the Babu Nitya Gopal Mukerji, who was some time ago appointed as director of the Sericultural Laboratory, established for the first time in India at Berhampur, has kindly promised to communicate to the Association any matter concerning silk and sericulture in India, and from his study of them in Italy and France interesting communications from him may be looked for. All communications of interest to our readers will be printed in the columns of the *Textile Mercury*.

COTTON MILLS IN GREECE.—There are seven cotton mills at the Piræus, employing about 25,000 persons. The annual output of these mills is about 1,500,000 dols., two-thirds of the goods being consumed in Greece itself, and the rest exported to Turkey, Bulgaria, Servia, and Roumania. About half the cotton used is of native growth, the other moiety being imported from Egypt, India, and America in about equal proportions. The hours of labour in all the Greek textile industries are long, averaging ten for three months in winter, twelve in spring and autumn, and thirteen during the summer months. The average rate of wages all the year round is eighty-five cents a day for men, forty-five cents a day for women, and ten to fifteen cents for children.