

Machinery and Appliances.

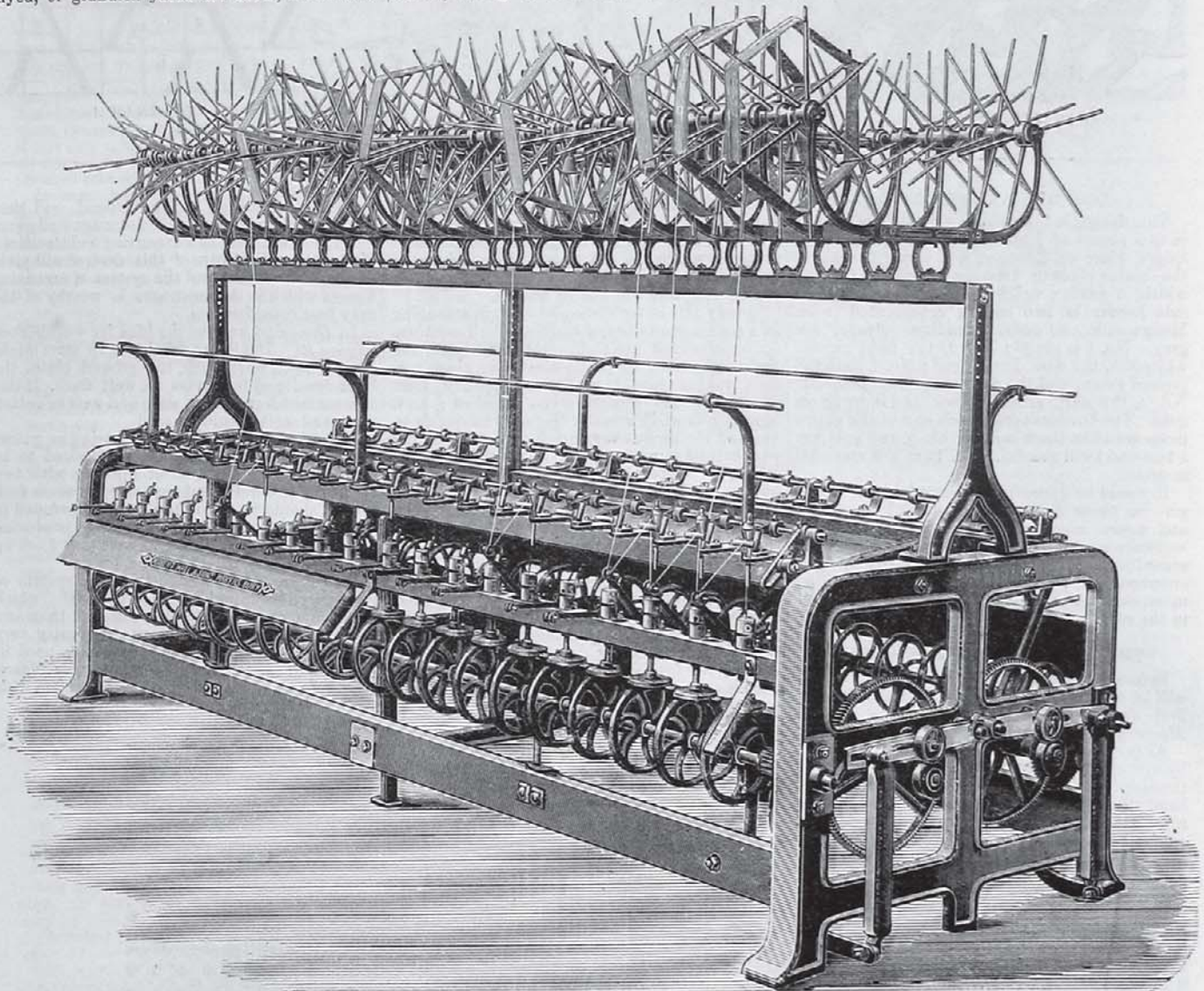
IMPROVED WEFT WINDING MACHINE.

MESSRS. ROBERT HALL AND SONS, BURY.

The weft winding machine, though little known in some branches of the textile industries, is yet general over a very wide extent, especially in those trades in which bleached, dyed, or grandrill yarns are used; and also in

sary in all cases, excepting that of winding weft tubes for linen and jute, to form it into a cone, and as the winding is always effected by frictional contact against the surface of this cone, with a constant revolution of the spindle, a variable rate of winding takes place. The greatest speed is attained when the winding is taking place upon the largest diameter of the cop, from which point it gradually declines to a minimum at the smallest which is upon the bare tube or bobbin. With soft wefts this alteration increases the number of breakages that occur, while with hard twisted yarns there is a much greater tendency to form snarls, owing to the rices or bobbins from

arrangements. The weft thread coming down from the hanks upon the rices passes under the rail, and thence around the small bowl upon the balanced lever shewn, from which it goes to the pin or bobbin, upon which it is exhibited as being wound. This pin is carried upon a loose spindle, mounted in a segment of a cup, and having a cylindrical bowl on the opposite side. This arrangement is found to diminish friction, and to make a good sound hard cop, having a perfect and evenly wound cone. The loose spindle carrying the pin descends into the bosses on the top of the driving spindle, by which connection the former are driven. The automatic stopping motion



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the silk, linen, jute and carpet manufactures. Wherever the yarn is spun upon bobbins, or has to be subjected to some process before it can be used, a weft winding machine becomes a necessity. Over these wide areas, therefore, a description of the improved machine just being introduced into the market by Messrs. Robert Hall and Sons, Bury, will be read with interest.

As these machines have been hitherto constructed, they have in one or more respects been defective. Amongst the imperfections may be named the want of an arrangement for stopping a spindle separately from the others when a thread breaks, and the absence of any method of securing uniformity of speed in winding. In winding the cop for the shuttle it is neces-

sary which it is being drawn, overrunning the minimum rate at which it is being wound up.

As large makers of this class of machines for all the textile trades which use them, Messrs. Hall and Sons have been fully cognizant of these deficiencies of the weft winding frame as generally constructed, and have accordingly devoted time, labour, and skill to supplying the various improvements necessary to obviate its defects. This they have succeeded in doing in a simple and ingenious manner, and in the machine illustrated herewith they offer to the various trades interested therein, what they confidently believe and affirm is the most perfect winding machine yet brought under notice. Our illustration represents one of its varied

consists of the balanced lever around the bowl upon which the weft passes, and which, retained in the elevated position shewn when the winding is in process, allows the two spindles to come into such contact that one drives the other. When the weft breaks or the hank or bobbin is exhausted, the lever falls into the position in the illustration, as shewn without threads and in which its opposite extremity lifts the loose spindle so as to break contact between it and the driver, thus stopping the pin and avoiding the injury that usually ensues in cases where its revolution is continued. The driving spindle is operated by the friction disc and plate as shewn, by which a differential speed of the spindle and a uniform rate of winding is obtained, the maximum being of the cop or bobbin in

course of formation, and the minimum at its largest, which obviates the disadvantages stated above. The lateral traverse of the driving wheels and the vertical traverse of the thread guides are obtained from heart cams through the usual connections.

We may observe that the improved arrangements shewn entirely dispense with the use of spindle banding and its frequent annoyances of stretching, breaking, etc., and of stopping the machine to replace or repair.

The machines are made in various styles to wind either from hanks, cops, warpers' bobbins upon paper tubes, pirn bobbins, tin tubes, or half pirns, or to form tubular cops. For the winding of tubular cops to weave from the inside and for coarse yarns bevel wheel gearing is substituted for the friction disc described.

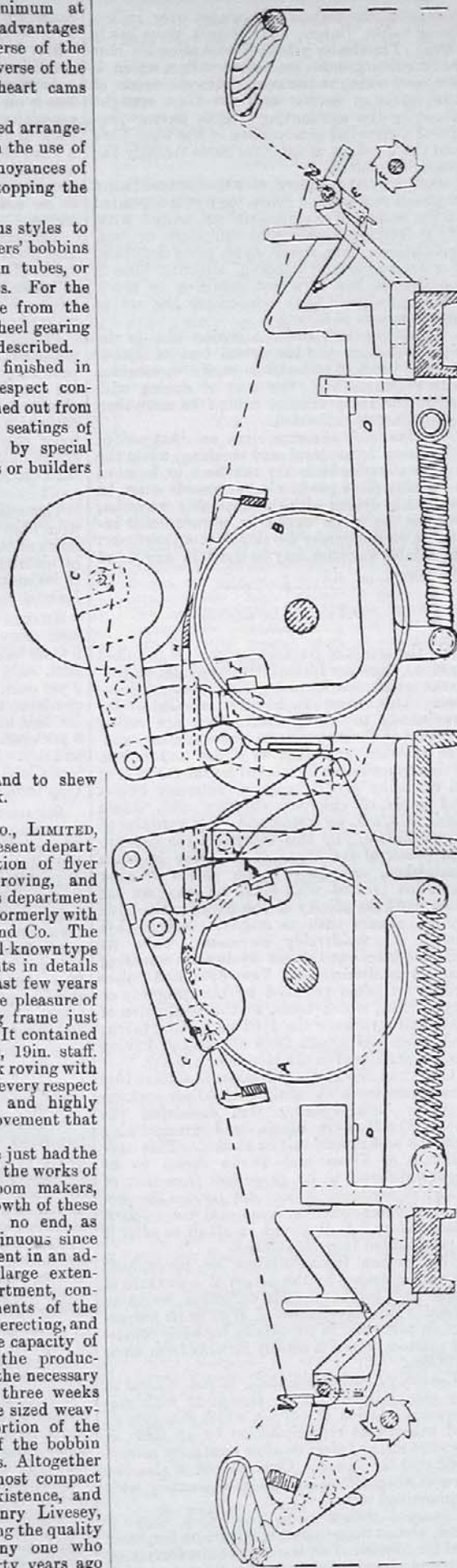
The machine is thoroughly well finished in all its details, and is in every respect consistent with the high-class work turned out from Messrs. Hall's establishment. The seatings of the rails and framing are planed by special machinery, and the finish of the cups or builders is very superior to what was once deemed sufficient.

The machine has already been supplied to firms in Scotland and Ireland; in the latter country to places engaged in the manufacture of the finest counts of linen used for hand-loom goods, and the spools for which could only hitherto be wound by hand. In Lancashire it is winding the very coarsest wefts used in the manufacture of heavy quiltings. Its wide range of adaptability is thus obvious.

The makers will be pleased to afford any further information, and to shew intending buyers a machine at work.

Messrs. TAYLOR, LANG, AND Co., LIMITED, Stalybridge, are adding to their present departments a new one for the construction of flyer frames: slubbing, intermediate, roving, and jack or fine roving frames. This department will be in charge of Mr. G. P. Ash, formerly with the well-known firm of Higgins and Co. The frames will be constructed on the well-known type of this firm, with such improvements in details as the mechanical progress of the last few years suggests. The other day we had the pleasure of inspecting a beautiful fine roving frame just before it was despatched abroad. It contained 140 spindles, 3in. bobbins, 6in. lift, 19in. staff. It was on its trial, making a 14 hank roving with a roller speed of 78 revolutions. In every respect the machine was well constructed and highly finished, and contained every improvement that skill and experience could suggest.

EXTENSION OF WORKS.—We have just had the pleasure of a renewed inspection of the works of Messrs. Henry Livesey, Limited, loom makers, Greenbank, Blackburn. To the growth of these works it seems as if there would be no end, as extensions have been almost continuous since their foundation. There is at present in an advanced stage of progress a further large extension of the machine making department, consisting of additions to or enlargements of the moulding, grinding, smiths, fitting, erecting, and joiners' shops. When completed the capacity of the establishment will be equal to the production of 200 looms per week, and the necessary preparatory machinery. Thus in three weeks the firm could equip a good average sized weaving shed in all its details. This portion of the business is, of course, exclusive of the bobbin turning and shuttle-making sections. Altogether it is now one of the largest and most compact loom making establishments in existence, and turns out first-class work, Mr. Henry Livesey, having been a pioneer in improving the quality of the work put into looms. Any one who remembers the loom work of thirty years ago and can compare it with that of to-day will be powerfully struck by the contrast.



IMPROVED PATENT QUICK TRAVERSE DRUM WINDING FRAME.

MESSES. GUEST AND BROOKS, PHOENIX IRON WORKS, POLAND-STREET, MANCHESTER.

We are pleased to introduce to the notice of our readers an improved machine of the above-named class, just being placed upon the market by the firm named above. As stated in the title, it is a quick traverse drum winding frame, and the improvements consist of a simplification of the construction of the drop-wire box and the traverse mechanism. In the accompanying illustration we shew a section of the machine with the improvements introduced.

The details are as follow: A, winding drum when at work; B, the same when it has ceased winding; C, the cradle for carrying bobbin or spool; D, spring lever; E, detector wire box; F, ratchet shaft; H, brake; I, latch for holding bobbin off brake; J, projection on spring lever for latch. The drum A on the left-hand side shews the position of the stop motion at the commencement of a spool with all the threads up and the winding going on; the drum B on the right-hand side shews the full spool and the position of the parts of the stop motion when it has knocked off and ceased winding.

The action may be briefly described as follows:—When a thread breaks, the wire in the detector box falls and comes into contact with the revolving ratchet carried on the shaft just below. This lifts the catch on the spring lever D, and allows the spring to shoot the lever forward into the position shewn on the right hand drum, which places the bobbin on the brake H and stops the winding. At the same time the detector wire box, which is self-weighted, falls back, carrying the wires out of the way of the ratchet. All these movements are simultaneous and very quickly accomplished, seldom allowing the end to get upon the bobbin. Should the winder require to lift the bobbin off the brake all that is necessary is simply to lift the cradle up until the latch I rests upon the projection J on the spring lever, which then holds the bobbin in such a position that it will turn freely on its spindle or peg. The broken thread having been found and pieced, to recommence it is not necessary for the winder to lift the cradle off the latch, all that is needed being for her to push the spring lever D forward, by doing which the bobbin is replaced upon the drum and the winding recommences. At the same time and by the same action the detector box is replaced in its proper position, so that as soon as another thread breaks the action of the mechanism is repeated. The stopping arrangement is exceedingly quick in its action, as will be obvious when regard is had to the fact that the ratchet has eight teeth, every one of which must stop the winding by its particular drum on the dropping of a wire. The ratchet shaft can only make one-eighth of a revolution after the drop of a wire before a stop is effected. This very rarely allows a broken thread to pass upon the bobbin. A further recommendation is its extreme simplicity of construction, diminishing greatly any liability to get out of order, while, at the same time, it is so simple that any unskilled person can readily comprehend it. It is also very easy and convenient for the winder.

The improvement in the quick traverse arrangement is obtained by working the traverse rods in brass guides on each side of the frame by means of a double cam working continuously in oil. The connections between the traverse rods and the cam are arranged with buffer springs, and are so made as to greatly diminish