

Machinery and Appliances.

AN IMPROVED CHAINING MACHINE.

MAKER: MR. W. HURST, SMITH STREET, ROCHDALE.

The chained or linked warp is a form of warp best known in the districts where bleached and dyed fabrics are usually manufactured. It is a process of linking-up a long warp into such a form as to give it the appearance of a chain. This shortens the length very much and facilitates the handling in the processes of bleaching or dyeing, whilst it permits free access of the bleaching liquor or colouring fluids to every portion of the warp. It is, therefore, a great convenience in these stages, and is extensively used in Scotland, Yorkshire, and some districts of South-East Lancashire.

unlinked with the greatest facility.

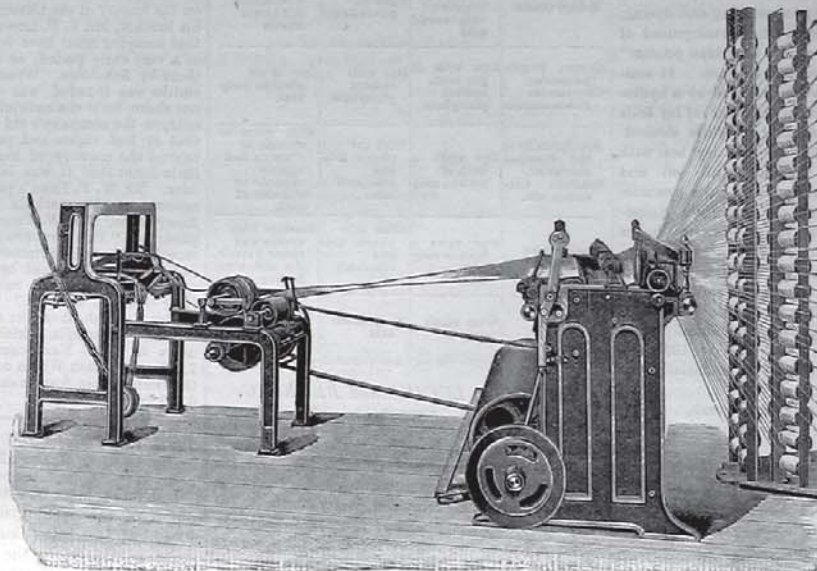
The best machine for accomplishing this purpose that we have ever seen, and, so far as we know, the best yet constructed, is the chaining machine invented and made by Mr. William Hurst, cotton spinner, Bowling Green Mills, Smith Street, Rochdale.

As will be seen from our illustration the chaining machine is represented in connection with an ordinary beaming frame, taking the yarn from the creel and through the mechanical parts of the machine.

A brief description of the construction of the machine is all we can give. The inventor fixes two projecting hooks or horns to the frame, and around these causes a trumpet guide to pass in such a manner as to carry the warp alternately around these horns. Within the horns grooves are constructed in which are two other hooks moving backward and forward. Beneath the fixed projecting horns, mounted upon the tops of two vertical shafts are two revolving loopers, and as the trumpet guide passes around the fixed horns the warp it is

warp from a beam through a beaming machine directly from bobbins, or from a warping mill, or any appliance by which warps are usually made. The warp is conveyed by means of drawing-off rollers, in such a manner as to prevent all strain on its passage to the chaining machine. In other cases the chain or linked warp may be formed by taking the threads direct from the bobbins, passing merely between or around rollers, and through a reed to preserve their parallel order and for the purpose of obtaining a lease and deliver them in a manne suitable for weaving.

The inventor has had the machine in use some time in his own mills, and has also supplied several other spinners with it. In every case it has given the most thorough satisfaction. By its use perfect uniformity of the link is secured—a short link being made as shown in the illustration. The link thus made is drawn out with the greatest ease and the least possible friction upon the threads, whilst all through the process the latter are kept well in their place. This preservation of the parallel order of the threads is



HURST'S IMPROVED CHAINING MACHINE.

* To chain a warp was formerly part of a warper's duty, and a man who could perform it skilfully and quickly was highly valued. The lack or scarcity of these men led to the attempt to invent mechanical appliances to perform the work, but of these attempts very few have come to anything of importance. Success required that the movements of the human arm and hand in chaining should be most accurately imitated so as to link up and interlock the warp in such a manner as to form a chain that should be unlinked or drawn out with perfect ease and freedom when required, without damaging any part in doing so. The invention consists of a machine for making a double link chain or links of five strands by a series of motions chiefly reciprocating. The chain produced is similar to the hand-made chain, but with this difference that the links of necessity must be, and are more uniform in their length, which is a great importance, also that every link is made with a tension which does away with all kinks in the warp, which hitherto have been so objectionable. In the warp chain it is desired that the chain should remain perfect until the bleaching or dyeing is finished, and that then it should be

carrying is looped upon one of them. The sliding hook in the latter then advances and draws the warp inward along the horn. The sliding hook is then liberated from the warp in order to be in readiness for its next movement. While these actions have been taking place one of the revolving loopers has passed the previously formed loop of the warp over the second loop, and clear of the extremity of the fixed horn. This completes the operation which then begins anew. This shows the action of one side of the machine, and whilst it has been in operation the corresponding side, identical in construction and action, co-operates with the first, and between the two the warp is chained in the most simple and perfect manner, and with the greatest expedition and ease.

The warp when chained is carried over pulleys, and laid in a box, and then tied up in a bundle. It may be allowed to fall upon the floor or into any suitable receptacle, or may be passed over carrier rollers or pulleys to any convenient place; or by various other appliances may be laid in any convenient form that may be desired.

The chaining machine will take and chain a

highly necessary to the most satisfactory work. The machine can be seen at work on application to Mr. Hurst, Bowling Green Mill, Smith-street, Rochdale.

IRON BELTING.—A contemporary reports that in a factory in Massachusetts a compound geared lathe is being now driven by iron belting. The pulley is about 4ft. in diameter, and receives its movement from a second pulley about 18in. in diameter, which is fixed on to a shaft giving 120 revolutions per minute, whose centre is about seven feet distant from the centre of the first pulley named; both of these pulleys are of iron, with their faces turned smooth. Originally the pulleys were drawn by a leather belt, but it was found that the belting slipped occasionally. In order to remedy this a rolled iron belt was supplied similar to what is used for making chimney tubes, and it was rivetted, the width was exactly the same as the leather belt, but it was slightly longer in order to compensate for its want of elasticity. Our correspondent informs us that this new belt has been in work for 12 months and has never slipped. We have very strong doubts as to the correctness of the statements made above, and should certainly not advise any of our readers to make alteration relying on its correctness.

ANOTHER IMPROVED YARN BUNDLING PRESS.

MAKER: MR. JOSEPH STUBBS, MILL STREET WORKS, MANCHESTER.

The yarn press shown in the accompanying illustration, is the latest improved type of this machine yet brought out by this well-known firm of makers. It is constructed for working by hand or power. The main difference between this press and the one formerly made by them

position. When in action they operate through contact with revolving bowls.

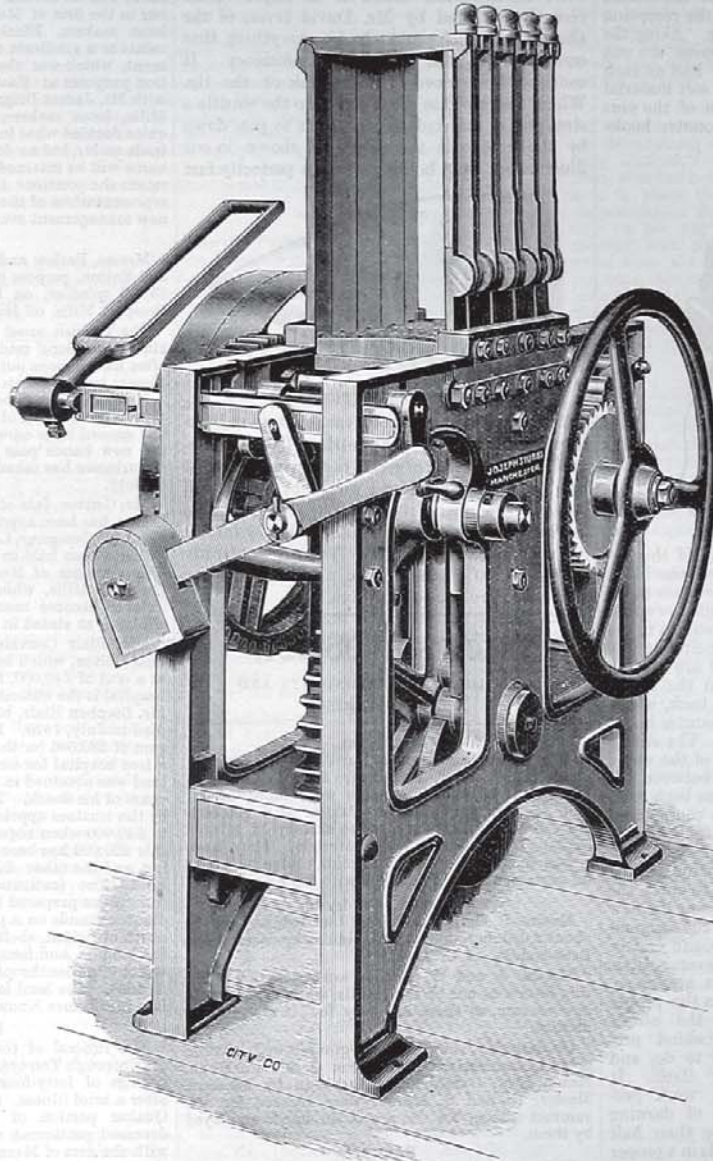
This arrangement does away with the necessity for a brake to prevent over running, and there is no reversal required. Since the firm introduced the improved lifting arrangement by means of the cams referred to, which is now about fifteen months, they have made upwards of eighty of these presses which have in every instance given the utmost satisfaction.

Our illustration shows the press as ordinarily

THE PATENT DARNING WEAVER.

MAKERS: EDWARDS AND BARNES, BIRMINGHAM.

Everybody knows that weaving is an ancient craft, and that its origin is quite lost in the mists of the most distant times. It would require a volume to tell the story of its development from its simple stage to the comparatively crude form which even yet survives in the secluded districts of this and many continental lands. It would require a much larger one to follow and enumerate with any detail the almost



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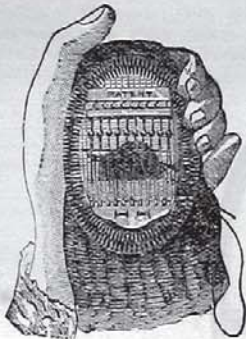
is in the introduction of a new lifting motion, consisting of two cams, one bolted to each side of the driving wheel and which lift the press table with perfect uniformity and with a more certain action than that of the old plan. By this lifting arrangement no over-running is possible, and no breakage can occur from this cause as when the top centre is passed the table begins to descend again. In order to ensure perfect uniformity in the construction of these cams, and through this the most accurate working, the two are bolted together and finished as one before being keyed upon the shaft in

made for 10lb. bundles, with box 12in. long by 8½in. wide and to receive four strings. The plates are of the best quality of wrought iron, and are forged, experience showing that this construction gives the soundest joints. All the parts are made and finished by special tools, constructed to ensure accuracy in every detail. When intended to be operated by hand a four arm handle or lever is supplied with it, which is not shown in the illustration. We ought to add that the press can be made to any size required. The makers may be communicated with as above.

numberless inventions that have been brought out and combined to bring into existence the modern system of mechanical weaving, one of the greatest wonders of civilization. It is singular to observe, however, that through the thousands of years that have elapsed since the art was invented, and, in spite of the marvels of inventive genius brought to light within the past century, the art of weaving in its simplest form has survived through all, and continues to be practised in almost every household in the land. If any of our readers have failed to discover it in their own homes, we need only point them to the homely occupation of mending stockings, commonly called "darning." This, in

a home blessed with many "olive branches," is a tedious labour to the mother and domestics, and yet is one which slender means always render it impossible to obviate. An inventor who would lighten this labour is one who would be entitled to, and we are sure would receive, the gratitude of tens of thousands of mothers in every civilized land.

Well, this boon to a mother has been found. Some nameless inventor, too modest to reap the fame he deserves, has invented the "Darning Weaver"—we should rather call it loom—illustrated herewith. It consists of a small block of wood about the size and shape of an ordinary tablet of soap. Around the edge of the block a considerable groove is formed for the reception of an endless spiral or coiled spring. Along the flat surface of the block two grooves are cut parallel to the length and about half an inch apart. These are filled with some soft material to form a cushion for the reception of the pins by which the weaving hooks and counter hooks are attached to the block.



PATENT DARNING WEAVER.

In preparing to darn by the aid of this ingenious appliance the operator places the block inside the material and against the place to be mended, replaces the fittings, the coiled or spiral spring, hooks and counter hooks, as shown in the illustration. The first is shown encircling the block held in the hand; the second are held in a small frame and are attached to the upper part of the block by two pins at the back, which enter the cushion, as shown; the counter hooks are similarly affixed at the bottom. The stitching is commenced by the formation of the warp, which consists of threads extended between the two series of hooks. When this has been completed, the insertion of the weft is commenced close to the counter hooks, by passing the needle—shuttle we ought to call it—under and over the threads of the warp in alternation, taking care with the first thread or two to enter the material to be mended, by which means the new fabric being made is attached to the original one. Similarly attaching the opposite end of the new warp, then observing several little points upon which full instructions are given, the needle is passed eye end first in the proper manner through the warp, with the needle pressing home the thread left behind precisely as the ancient weaver used to do, and your new cloth will soon show itself. It is astonishing how rapidly the work progresses compared to the old plan of darning when the worker has to waste more than half her time in keeping the warp threads in a proper state of tension. With a little practice it seems to us that very quick progress could be made, and the wearisome Saturday night's task in many a home be materially lightened.

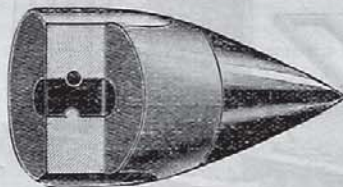
In many of our mills and workshops this little appliance would prove useful. Where fine cotton fabrics, worsteds, woollens and other articles are occasionally damaged, and have to be repaired, the repairs could be done more expeditiously and in a better manner by the aid of this appliance than by the ordinary method. There would thus be a great economy in both time and wages, that would many times over repay the cost of the article.

We understand the "Darning Weaver" can be obtained from drapers, or direct from the manufacturers as above. We ought to mention that it is packed in a neat box.

PATENTED SHUTTLE TIP.

MAKERS: MESSRS. IRVIN AND SELLERS, PRESTON.

Most overlookers and weavers have had experience at one time or another of the annoyance and trouble that result from shuttle tips coming loose and breaking the warp threads. Sometimes, in the event of the tip coming out, smashes occur. In order to remedy these mishaps various means have been resorted to, but none of them appear to have been perfectly efficacious so far as we are aware. Our attention, however, has been called to an improvement recently patented by Mr. David Irvin, of the above firm, which proves to be everything that can be desired in the way of efficiency. It consists of a groove in the shank of the tip. When the tip has been put into the shuttle a steel pin is inserted therein, so as to pass down by the groove in the shank, as shown in our illustration, thus holding the tip perfectly fast



IMPROVED SHUTTLE TIP.

against any chance of disturbance afterward, except by fracture of the shuttle. The improvement has met with great favour wherever it has been introduced, and we doubt not it will instantly commend itself to our readers, as its merits are obvious to the most ordinary intelligence of a practical nature. There are already nearly 50,000 in use. It is patented, and the above firm are the sole makers.

News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

Accrington.

A breakdown occurred at New Factory, Church-street (Exors. of T. Hargreaves and Co.), but the hands will be able to resume work immediately. The weavers employed at Paxton Mill (Messrs. Bury Brothers'), struck work on account of alleged excessive bating and bad materials. They have resumed work, however, it being understood that an agreement would be made with the employers.

Ashton-under-Lyne.

Messrs. J. Andrew and Sons, Limited, have put in about 3,000 more mule web spindles by Messrs. Asa Lees and Co., of Oldham.

Messrs. J. and W. Hamer are putting in a few ring frames at one of their mills, which is rather a new venture, as there are very few, if any, in this district.

On Saturday, the recreation grounds and bowling green in connection with the firm of the late Hugh, Mason, Esq., Oxford Mills, now run by his sons, Messrs. R. and S. Mason, were opened for the summer season, for the use of the hands employed by them.

Bacup.

The manufacturing firm of Messrs. T. Best and Co., Height Barn Mill, are making an extension of their premises in building a size house, to size their own warps.

There is every probability of the short time movement becoming general in this district, as several firms have begun running four days per week, whilst other firms have given notice of their intention to do so.

Blackburn.

The "Glory Shed," at Audley Range, has been bought by Mr. Riding, and he is about to fill it with looms for Mr. Cocker, formerly manager for Messrs. W. D. Coddington and Sons.

A SPINNING MILL IN THE MARKET.—Messrs. Edward Rushton and Sons offered for sale by auction, at the Exchange Salerooms, the whole of the Bonaccord spinning mill. There were no bidders, and the property was withdrawn.

The contract for the erection of new premises for the Manchester and County Bank has been let to Messrs. R. Neill and Sons, Manchester. The building promises to be a handsome one, and an important addition to the public buildings of the town.

THE PROPOSED STEPHENSON MEMORIAL.—At a meeting of the committee of the Blackburn and District Power-loom Weavers' Association it was decided to make a collection among the weavers of 2d. per loom, in aid of a fund for erecting a permanent memorial of the late Dr. Stephenson. The collection will realise over £200. It is not decided what form the memorial shall take.

We learn that the trustees of the late Mr. Haydock, who for several years was the principal partner in the firm of Messrs. W. Dickenson and Sons, loom makers, Blackburn, have disposed of the estate to a syndicate of gentlemen. The establishment, which was closed for stocktaking and valuation purposes at Easter, resumed on Monday last, with Mr. James Briggs, of the firm of Willans and Mills, loom makers, as manager. It is not yet quite decided what form the new firm will decide to trade under, but no doubt the old and well-known name will be retained. Mr. Ingham and Mr. Abbott retain the positions they have respectively held as representatives of the firm. We cordially wish the new management every success.

Bolton.

Messrs. Barlow and Jones Limited, of Manchester and Bolton, propose to erect a spinning mill to hold 70,000 spindles, on land adjoining their series of Prospect Mills, off Higher Bridge-street, Bolton.

The Turkish towel weavers at Messrs. G. Hodgkinson and Sons' returned to work on Monday last, after having been out a little over a week, the employers having granted the advance asked for.

Messrs. Joseph Crook and Son, Limited, have obtained the services of a few outside spinners, which has caused large crowds to collect near the mill as the new hands pass to and from their work. No disturbance has taken place. The men have pickets on duty.

Mr. Gritton, late of Mr. Cheatham's mill, Stalybridge, has been appointed manager to the Sharples Spinning Company, Limited. This appointment has hitherto been held by Mr. C. G. Sandell, who was also manager of Messrs. Greenhagh and Shaw's Halliwell Mills, which positions he has resigned in order to become managing director for a firm in Finland, as stated in our last issue.

The Blair Convalescent Hospital at Toppings, near Bolton, which has been erected and endowed at a cost of £40,000, has been formally opened. The hospital is the outcome of the generosity of the late Mr. Stephen Blair, bleacher, Mill Hill, Bolton, who died in July, 1870. He bequeathed by his will a sum of £30,000 for the erection and endowment of a free hospital for sick persons, providing a plot of land was obtained in the Bolton union within three years of his death. The money was so well invested by the trustees appointed that it had accumulated to £40,000 when required for its purpose, and of this £20,000 has been spent in building and furnishing, and the other £20,000 forms the endowment fund. The institution, which has been erected from plans prepared by Mr. Medland Taylor, Manchester, stands on a piece of elevated ground to the north of Bolton, sheltered by the Belmont and Turton heights, and forms a valuable addition to the various philanthropic institutions in the Bolton district. The land for the site was given by the late Mr. James Knowles.

Bradford.

The funeral of the late Mr. Charles Baxter, of Marlborough Terrace, Manningham, whose death at the age of forty-four, occurred on Thursday week after a brief illness, took place on Tuesday in the Quaker portion of Undercliffe Cemetery. The deceased gentleman was connected from boyhood with the firm of Messrs. A. Hoffman and Co., merchants, and was admitted a partner in 1856, on the death of Mr. A. Hoffman.

In the case of Messrs. Shott Brothers, fancy yarn manufacturers, Richmond-road, Bradford, for whom a liquidator is appointed, it is only owing to a change in the partnership. They were the inventors of the fancy loop yarns so much in demand for several years in the Bradford trade. They have now secured a patent for figured goods wherein the figures are produced with cut pile, which will be another new feature in Bradford manufactures.

Burnley.

Mr. Morrison succeeds the late Mr. Froggatt, as manager of Messrs. Tunstill's Newtown Mill.

Mr. Dixon, of Preston, has been appointed manager of the Healey Royd Self Help Co.

Mr. J. H. Whittaker, the owner of the Whittlefield and Calder Vale Sheds, both lately occupied by Self Help Companies, commenced, on Monday, to