(No Model.)

J. W. SHERRY.

LOOM.

No. 605,019 Patented May 31, 1898.

Fig. 1.

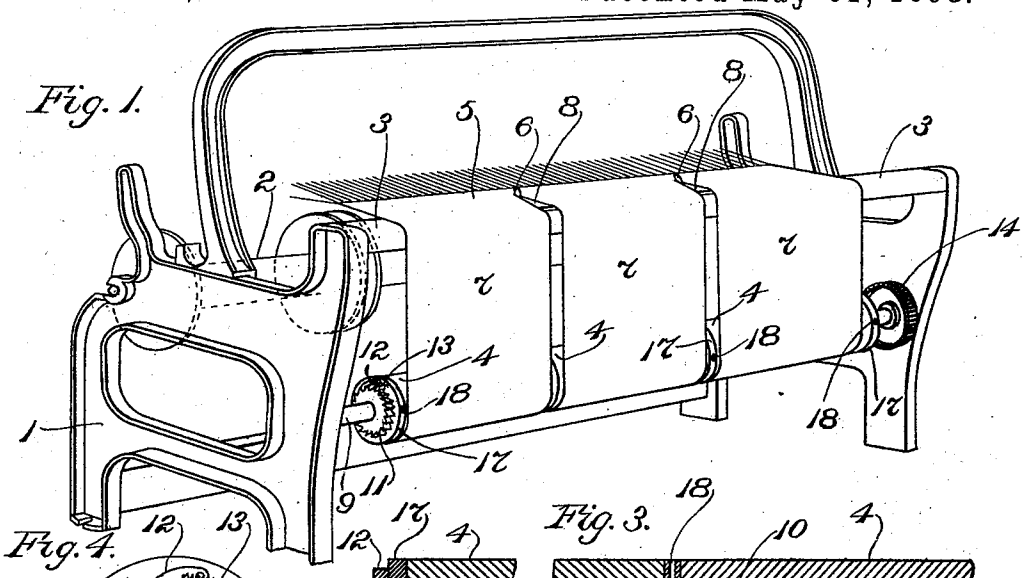


Fig. 4.

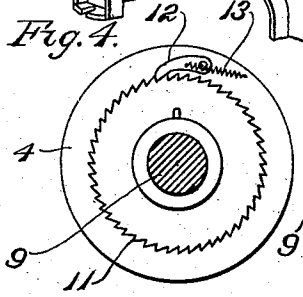
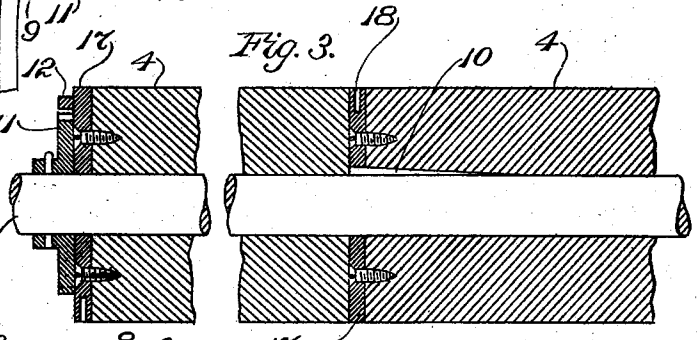


Fig. 3.



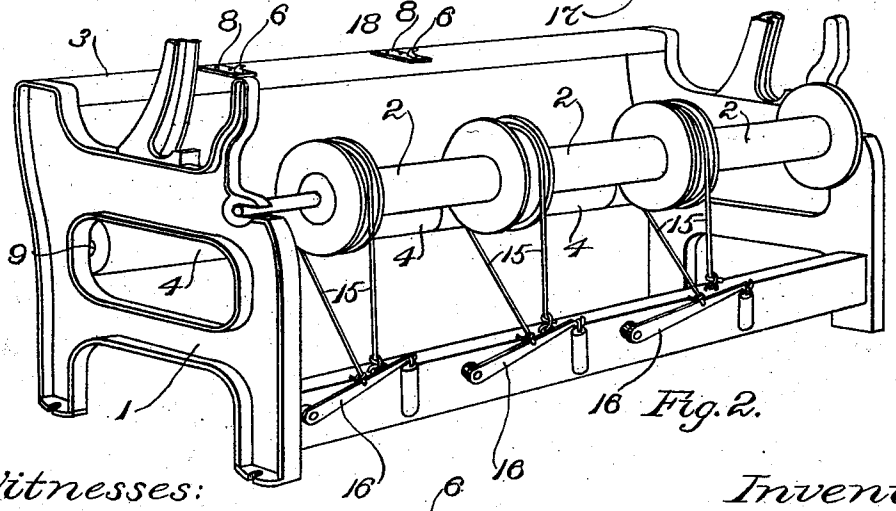


Fig. 2.

Witnesses:

Oscar F. Hill

Howard Richmond



Fig. 5.

Inventor:

John W. Sherry

by Macleod Calver & Randall

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN W. SHERRY, OF CROMPTON, RHODE ISLAND, ASSIGNOR TO THE CROMPTON COMPANY, OF PROVIDENCE, RHODE ISLAND.

LOOM.

SPECIFICATION forming part of Letters Patent No. 605,019, dated May 31, 1898.

Application filed December 18, 1897. Serial No. 662,426. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SHERRY, a citizen of the United States, residing at Crompton, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

In the course of the production of a web of cloth in a loom faults occasionally are caused therein by a defect in the weaving. The loom is stopped usually as soon as a mispick is discovered, and the picks of weft last introduced into the web are removed in reversed order by an unweaving process back to the perfect cloth, after which, any needed attention having been paid to the warp-threads, to the shuttle and its load of weft, or to the parts of the loom, weaving is resumed. Sometimes the fault is not discovered until after several inches of cloth have been woven past it. The unweaving or picking out of the weft back to perfect cloth is slow and tedious work and requires the undivided attention of the loom attendant. Until it has been completed the loom stands idle. While he is engaged thereat the other looms which are in charge of the same attendant must go without attention, and sometimes one or more of the latter stop or are stopped and have to be left idle until they can be attended to in their turn. Heretofore, notwithstanding the fact that a fault in the weaving might affect only a small portion of the width of a web, it has been necessary to pick out or unweave back to the place of the fault across the entire width of the web, which has involved an expenditure of labor and time proportioned to the said width and a waste of a very considerable amount of material in the shape of the weft which is removed from the web by the picking-out operation. In general these things cannot be avoided. I have discovered, however, that in the production of certain classes of goods it is possible to obviate the necessity of picking out or unweaving across the entire width of the web which is being produced in a loom—that is to say, I have found that in weaving such classes of goods it is possible when a fault is observed in some particular portion of the width of the web which is being produced in a loom to proceed by picking out the wefts of such portion only, leaving the remaining portions of the width of the web untouched, and then to resume the weaving after having let back the portion first mentioned to the cloth-making point. This mode of procedure enables a very great saving of time and labor to be effected and also enables a loom to be restarted and weaving to be resumed after much less delay than otherwise is the case. It saves also in material to the extent of the amount of weft which under the old method of procedure is picked out and which in practicing my invention is left untouched in the portions of the web which are not picked out. The aim or object of the invention is to provide means to enable this mode of procedure to be followed in convenient and practicable manner. The invention consists in such means. The classes of goods in connection with which the invention is capable of being utilized are those goods of moderate or narrow width which are produced by weaving a broad web in a wide loom and subsequently dividing the same into narrow webs along one or more longitudinally-extending lines parallel with the selvages of the broad web.

The invention will be described first with reference to the accompanying drawings, in which latter I have illustrated one means of reducing the same to practice, after which the distinguishing characteristics thereof will be particularly pointed out and distinctly defined in the claims at the close of this specification.

Figure 1 of the accompanying drawings is a perspective, looking from the front thereof, of a loom having one embodiment of my invention applied thereto, only such portions of the loom being shown as are necessary for the purpose of clearly indicating the nature of the invention and the manner of applying the same. Fig. 2 is a perspective looking from the rear of the said loom. Fig. 3 is a view of the take-up devices in longitudinal section. Fig. 4 is a view of such devices in detail. Fig. 5 shows one of the web-cutters, to which reference is made hereinafter.

1 in the drawings designates the loom-frame.

2 2 2 are yarn-beams.

3 designates the breast-beam.

4 4 4 are take-up beams.

5 designates a broad web of cloth which is produced in the operation of the loom.

I reduce my invention to practice in the following manner:

I provide for dividing the web 5 in the loom into narrower webs as fast as the weaving proceeds. To this end I apply to the breast-beam 3 or other convenient support one or more web-cutters or knives 6. Two web-cutters or knives 6 6 are shown in the drawings, and they are arranged in position, as shown clearly in Figs. 1 and 2, to cause the advance of the cloth as the latter is drawn forward by the taking-up devices to carry the wefts successively against the edges of the web-cutters or knives, the said edges operating to sever the said wefts in the forward movement of the cloth, thereby dividing the broad web 5 into the three narrower webs 7 7 7. One of the web-cutters or knives is shown separately and on an enlarged scale in Fig. 5, in which latter it is shown as comprising an upright blade with a sharpened rear edge, the said edge being formed with portions meeting at an angle, into which latter the cloth enters, and the said blade being attached to a base or plate 8, which is secured in convenient manner to its support, the latter being the breast-beam in the present instance. The web-cutters are arranged to act at a short distance forward of the cloth-making line in the direction of the advance of the cloth, thus leaving several inches, more or less, of unsevered broad web extending from the cloth-making line to the places at which the broad web is severed into the narrower webs 7 7 7.

In carrying the invention into effect I provide for occasioning the taking up of the narrower webs 7 7 7 in unison with one another and by means of devices having a certain independence of action in the case of the respective narrow webs, which enables one or more of the latter to be let back or otherwise adjusted or manipulated independently of the others as and when required. Separate and independent take-up mechanisms of usual and known character may be provided for the respective narrow webs; but for the sake of convenience, compactness, simplicity, and low cost I employ, by preference, the combination and arrangement of cloth-beams and actuating means therefor which I have illustrated in the drawings and which I now shall proceed to describe with reference to the latter.

9 is a shaft on which the three take-up beams 4 4 4 are mounted end to end. The middle one of these beams is made fast on the said shaft, as by means of a key 10. The other two beams are mounted on the shaft with capacity to turn independently thereon and respectively are provided with means whereby to enable each of them to be clutched to the said shaft, so as to rotate in unison with the latter, the clutching means permitting of disengagement to allow the respective beams to be turned independently on the shaft. A convenient form of clutching device consists of a toothed wheel or ratchet 11, which is made fast to the shaft adjacent to the outer end of each of the loose beams 4 4, and of a dog or pawl 12, which is connected pivotally with the said outer end of the adjacent beam, a spring 13 being provided for the purpose of holding the said dog or pawl pressed into engagement with the toothed wheel or ratchet. In practice motion may be communicated to the shaft 9 in any convenient manner for the purpose of rotating the same, this motion being transmitted to the said shaft, for example, by means of a gear 14, made fast thereon. The beams 4 4 4 may be utilized either as cloth-receiving beams or simply as cloth-feeding beams. As will be obvious, the rotation of the three beams 4 4 4 in unison will operate to draw forward all portions of the width of the broad web of cloth as fast as it is woven, each of the said beams receiving the appropriate narrow web formed by the subdivision of the said broad web.

When required for the purpose of remedying faults in the weaving or for the purpose of attaining any other result that may be desired, the entire broad web of cloth may be let back by letting back all of the narrower webs in unison. When, however, a fault does not extend beyond the width of one of the narrower webs, the letting back of the other two narrower webs may be obviated. In this case when my invention is utilized it is necessary only to sever, between the appropriate weft cutter or knife and the cloth-making line, the as yet unsevered wefts of the broad web. After this the wefts of the narrow web in which the mispick occurs may be picked out back to and including the place of the fault. Then the said narrow web may be let back to bring the last weft therein contained back to the cloth-making line and weaving may be resumed.

In letting back from either of the end beams 4 4 all that is required is to disengage the corresponding dog or pawl 12 from the adjacent toothed wheel or ratchet 11 and then to cause the proper narrow web to be drawn backwardly in the loom. In letting back from the middle beam 4 the shaft 9 and all of the beams thereon will have to be made to turn reversely, after which the end beams will be rotated independently of the middle beam for the purpose of drawing forward their webs again into their original position. For the purpose of facilitating the adjustment of the individual end beams 4 4 and of preventing undue retrograde movement thereof when they are unclutched from shaft 9 I provide at the end of each of such beams a disk 17, having holes 18 for the reception of a pin in the hands of the weaver, the said pin enabling the weaver to

hold the beam while unclutched from the shaft or to adjust the beam and its web as may be required. When one of the narrow webs is let back, as just described, it is necessary that the warp-threads which pertain to the same should be drawn back also and that the tension of the said warp-threads should be maintained uniform with that of the remaining warp-threads. This may be provided for in many ways; but I have heretofore found it most convenient to provide for it by employing a separate warp-beam 2 for the warp-threads which pertain to each of the narrow webs. In the drawings I have shown three warp-beams mounted at the rear of the loom, the number thereof corresponding with the number of narrow webs intended to be produced. Each of the said warp-beams is made independent of the remaining warp-beams, so that when the need arises the respective warp-beams may be adjusted separately, as required in rewinding upon any one of the same the warp-threads which are supplied therefrom when the said warp-threads are slackened by the letting back of the narrow web into which they are interwoven. Each of the said warp-beams is provided with a frictional drag device. In the drawings I have shown a well-known form consisting of a rope or chain 15, passing around one head of each warp-beam, the said rope or chain being connected at one end to a portion of the loom-frame and at the other end thereof to a weighted lever 16.

I claim as my invention—

1. A loom provided with one or more web-cutters or knives whereby to divide longitudinally into narrower webs the web which is woven in the loom, a take-up shaft, a plurality of take-up beams mounted on said shaft, independent sets of beam-driving connections interposed between the said shaft and beams comprising toothed wheels and pawls engaging the said wheels, whereby by disengagement of the pawls from the toothed wheels the independent letting back and adjustment of the respective narrow webs is facilitated, and warp-supplying devices permitting of separate adjustment of the warp-threads of each narrow web, whereby to obviate the necessity for picking out the weft-threads of more than the narrow web in whose width a mispick occurs.

2. A loom provided with one or more web-cutters or knives whereby to divide longitudinally into narrower webs the web which is woven in the loom, a take-up shaft, a plurality of take-up beams mounted on said shaft, one of them fast and the others free to turn thereon, the toothed wheels fast with said shaft, the pawls connected to the free beams and engaging said toothed wheels, whereby to facilitate independent letting back and adjustment of the respective narrow webs, and the separate yarn-beams supplying the warp-threads pertaining to the respective narrow webs, all contributing to obviate necessity for picking out the weft-threads of more than the narrow web in whose width a mispick occurs.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. SHERRY.

Witnesses:

GEORGE W. FRASER,

ANN E. TIBBITTS.