

No. 623,092.

Patented Apr. 11, 1899.

J. T. MEATS.

LOOM.

(Application filed Apr. 27, 1898.)

(No Model.)

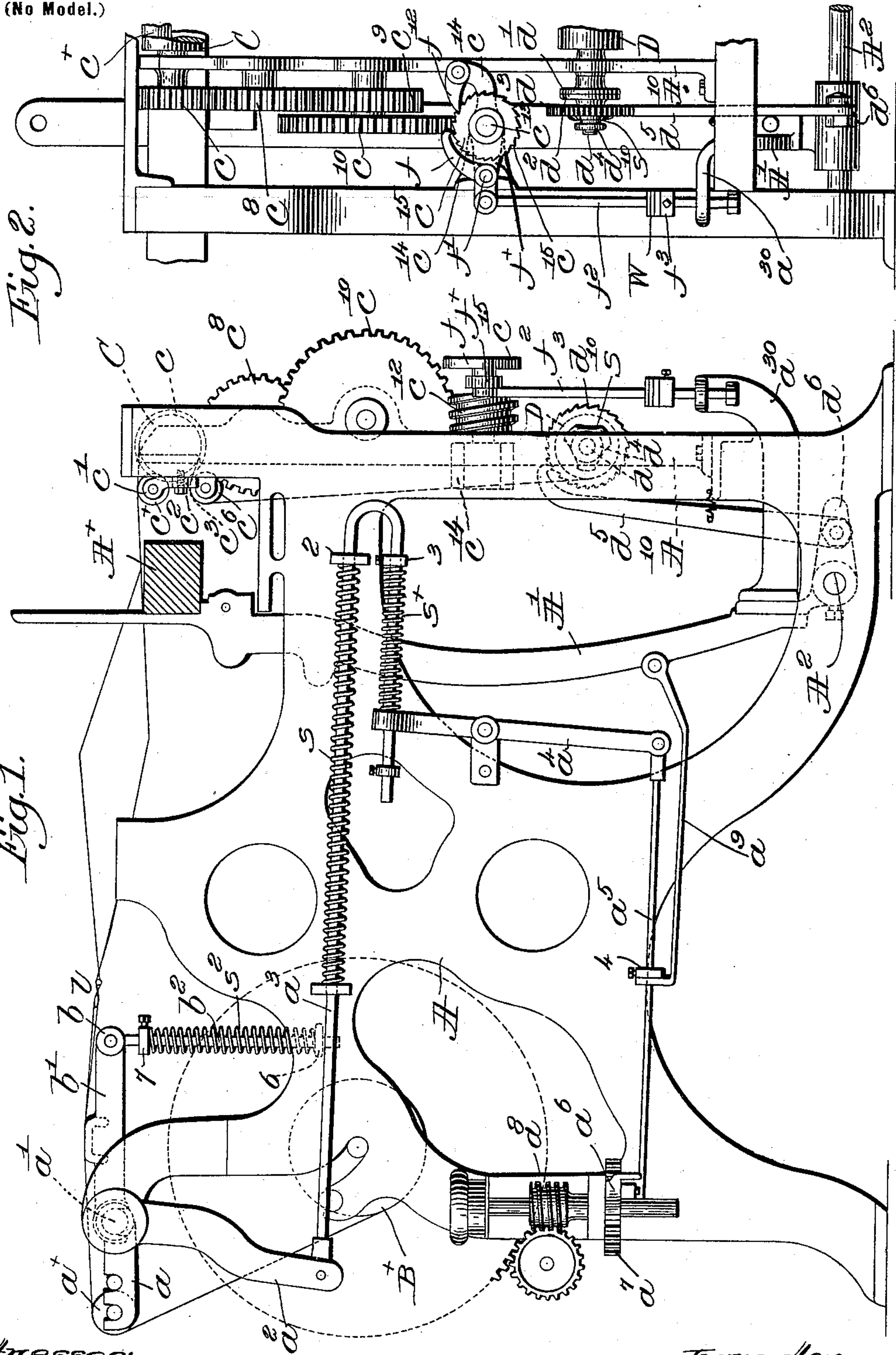


Fig. 2.

Fig. 1.

witnesses:
Edward F. Allen.

A. C. Harmon.

Inventor:
Jesse T. Meats,
by Crosby Gregory, atty.

UNITED STATES PATENT OFFICE.

JOHN T. MEATS, OF TAUNTON, MASSACHUSETTS, ASSIGNOR TO THE MASON MACHINE WORKS, OF SAME PLACE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 623,092, dated April 11, 1899.

Application filed April 27, 1898. Serial No. 678,939. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. MEATS, of Taunton, in the county of Bristol and State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to looms for weaving; and it has for its object more particularly the production of novel means for varying the appearance of the face of the cloth by causing the filling or weft to show more or less prominently.

Other features of my invention will be hereinafter fully described, and particularly pointed out in the claims.

Figure 1 is a side elevation of a loom with one embodiment of my invention applied thereto, the harness mechanism being omitted; and Fig. 2 is a partial front elevation of the loom, showing the mechanism at the left-hand side thereof.

The loom-frame A, lay A^x , the lay-swords A' , mounted on the rock-shaft A^2 , the whip-roll a^x , and a warp-beam B^x may be and are of usual construction, the whip-roll and warp-beam being controlled by the well-known "Bartlett" let-off mechanism. Briefly stated, this let-off mechanism comprises arms a for the whip-roll, attached to the rock-shaft a' , having a depending arm a^2 , with which is connected a bent rod a^3 , longitudinally movable in a fixed bearing 2 and having springs s^x , the latter being held between an adjustable collar 3 and the perforated end of a rocker-arm a^4 . A link a^5 pivotally connects this arm with a pawl-carrier having a pawl a^6 to operate a ratchet-wheel a^7 on the shaft of a worm a^8 , the latter by suitable intermediate gearing effecting the rotation of the warp-beam B^x . A collar 4 on the link a^5 is engaged by the end of the actuator-rod a^9 , shown in Fig. 1 as connected with the lay-sword A' .

In order to relieve the warp-threads of strain independently of the let-off motion and when the lay is beating in the weft, I have mounted an auxiliary whip roll or bar b on the frame, herein shown as pivotally mounted

on the rock-shaft a' , the supporting-arms b' having depending legs b^2 , which slide in stands 6, a spring s^2 , surrounding the leg between the stand, and an adjustable collar 7, the bar b acting on the warps between the lease-rods l and the let-off or whip-roll a^x .

Obviously the auxiliary roll or bar b could be mounted independently of the rock-shaft a' , the construction shown being used for convenience.

The auxiliary roll reduces the strain on the warp-threads at the moment of letting off and also when the filling is beaten in, the latter being the more important, for it softens the effect of the blow without otherwise affecting the let-off motion.

By the use of the auxiliary whip-roll an increase in speed and production is made possible, and the quality of the cloth is much improved by virtue of the decreased number of broken warp-threads.

I have herein shown the breast-beam as a roll C, mounted to rotate in the main frame at the front of the loom and provided with a gear c , and between this breast beam or roll and the lay and adjacent the former I have interposed a vertically-adjustable cloth-supporting roll or bar c^x , mounted in stands c' , which by means of bolts c^2 , passing through slots c^3 , (see dotted lines, Fig. 1) in the stands, can be raised or lowered. The face of the cloth woven can be varied by means of this roll or bar, for when it is desired to have the filling show more prominently than the warp, or, in other words, to "cover" more, the roll or bar is raised. This acts to tighten the warp-threads when the filling is being beaten in, and the latter by reason of its greater slackness can be lifted by the reed-dents at the moment of beating in, to thereby cover the warp-threads. Conversely, by lowering the cloth-support c^x the upper warp-threads are slackened, and they are made to cover or be shown more distinctly, as is sometimes desired.

A breast-roll or rotatable breast-beam is not broadly new, and the cloth has also been wound upon such a breast-roll, but with unsatisfactory results; but so far as I am aware

the use of an auxiliary vertically-adjustable cloth-support between the breast-beam and the lay and in front of the reed is new and is one of the essential features of my invention.

5 It is not practicable to raise or lower the breast-roll itself, because the actuating-gear thereon must be kept properly in mesh with the gear which drives it.

The cloth passes over the cloth-support c^x and breast-roll C, around the latter, and over a guide-roll c^6 back of the breast-roll, and thence directly to the cloth-winding roll D, journaled in stands A^{10} , forming a part of the loom-frame, one of said frames being shown 15 in the drawings.

One of the journals, as d , of the winding-roll D is extended through the stand A^{10} and has fast thereon a friction-disk d' , cooperating with a like friction-disk d^2 , loosely mounted 20 on the journal and having fixed to it a ratchet-wheel d^3 , the friction between the surfaces d' and d^2 being adjusted by a suitable hand or setting-up nut d^4 , screwed onto the journal, a spring s^{10} being preferably interposed between the nut and the ratchet-wheel.

A pawl d^5 is herein shown as adapted to engage and actuate the ratchet-wheel, said pawl being mounted on an arm d^6 , fast on the rock-shaft A^2 , to which the lay-swords are attached, 30 whereby the ratchet-wheel and the cloth-winding roll D will be rotated step by step at each beat of the lay. The friction is adjusted by means of the nut d^4 to wind the cloth upon the roll D with the required degree of hardness, and as the diameter of the roll of cloth increases the slip of the friction connection is also increased. As the one approximately balances the other, the cloth is wound with practically uniform hardness.

40 The breast beam or roll C is positively rotated, but entirely independently of the rotation of the cloth-winding roll, and such "take-up" mechanism will now be described.

The stand A^{10} supports the breast-roll C and 45 a gear c^8 in mesh with the gear c , fast on the breast-roll journal, while the gear c^8 meshes with a pinion c^9 , having an attached worm-gear c^{10} also supported on the stand, the worm-gear engaging a worm c^{12} , rotatable on a stud c^{13} , carried by a bracket c^{14} on the inner face of the loom side A.

A ratchet-wheel c^{15} is attached to the worm, and it is engaged by a tappet-pawl f , pivoted at f' on an arm f^x , fulcrumed on the stud c^{13} , 55 and at the opposite side of the ratchet-wheel a suitable detent-pawl f^{12} is mounted on the bracket c^{14} .

On the free end of the arm f^x a depending rod f^2 is pivoted, its lower end extending 60 loosely through a tappet-lever a^{30} , herein shown as attached to the adjacent lay-sword A' , a weight W being held on the rod by an adjustable collar f^3 above the end of the tappet-lever.

65 When the pawl-carrier f^x is in the position

shown, (see Fig. 2,) the weight W will act through the pawl f to turn the ratchet-wheel c^{15} as the weight descends, and through the worm c^{12} and intermediate train of gearing the breast-roll C is rotated to take up the cloth. 70 When the weight descends far enough to bring the collar f^3 into engagement with the tappet-lever a^{30} , the latter will on the back stroke of the lay lift the rod f^2 and its weight into the position shown in the drawings, so that the pawl-carrier and its pawl 75 will be returned to operative position. Thus it will be seen that as the filling is beaten in by the lay the weighted pawl-rod f^2 descends until it is again, through the collar f^3 , brought 80 into engagement with the tappet-lever, which raises it, and so on indefinitely while the loom is running.

I have herein shown the cloth-winding roll located beneath the breast-roll and its actuating mechanism, and I have also shown a 85 train of gears between the breast-roll and the take-up ratchet-gear; but my invention is not restricted to such location and arrangement, as the same may be varied or rearranged without departing from the spirit and 90 scope of my invention.

It has been found by exhaustive experiments that the less the distance between the reed and the take-up roll the less the cloth 95 will move forward and back in the act of "beating up," with a consequent reduction of friction on the warp-threads, reducing the breakage of the latter to a minimum.

By the construction herein shown I combine 100 the functions of breast-beam and take-up roll in the breast-roll or rotatable beam, and I am enabled thereby to bring the take-up roll very near to the reed with all the consequent advantages as herein set forth.

By operating the take-up mechanism, as herein shown, and independently of the cloth-winding roll I effect a greater elasticity in the operation of the take-up, and the cloth is wound more uniformly, and the degree of 110 hardness which it is desired to wind the cloth is adjusted without necessitating a change in the take-up.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is— 115

1. In a loom, the lay, a breast-beam, and a vertically-adjustable cloth-support located between them, substantially as described.
2. In a loom, the lay, a breast-roll, and a 120 vertically-adjustable cloth-support located between them and immediately adjacent the breast-roll, substantially as described.
3. In a loom, a breast-roll, means to positively rotate it to take up the cloth, and a 125 vertically-adjustable cloth-support behind the breast-roll, substantially as described.
4. In a loom, take-up mechanism, including a positively-rotated breast-roll, an adjustable cloth-support adjacent and at the rear of the 130

breast-roll, a cloth-winding roll, and means to actuate it independently of the take-up mechanism substantially as described.

5 In a loom, a whip-roll, and an auxiliary warp-supporting roll or bar yieldingly and adjustably mounted between said whip-roll and the lease-rods.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN T. MEATS.

Witnesses:

JOHN COWPER EDWARDS,
AUGUSTA ELLA DEAN.