(No Model.)

C. STROBEL.

LOOM FOR WEAVING TERRY FABRICS.

No. 346,073. Patented July 20, 1886.

Fig. 1.

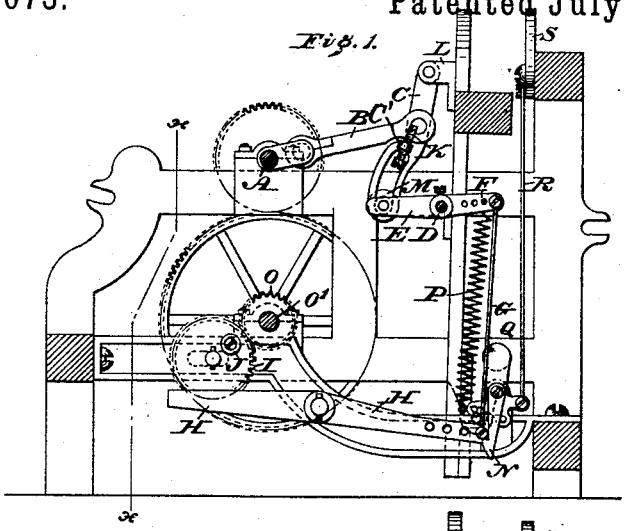


Fig. 2.

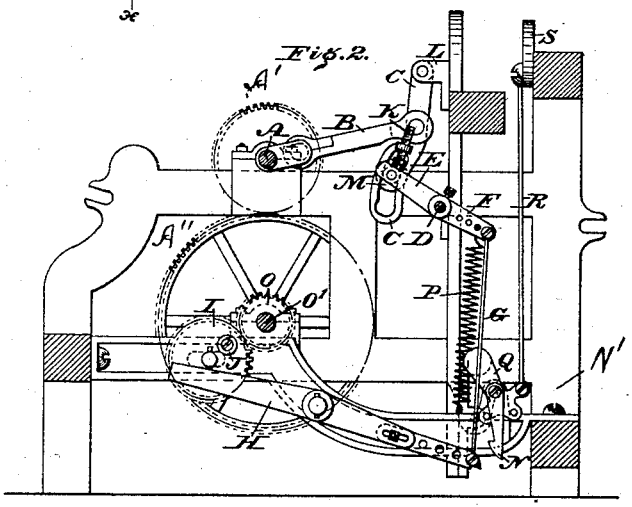
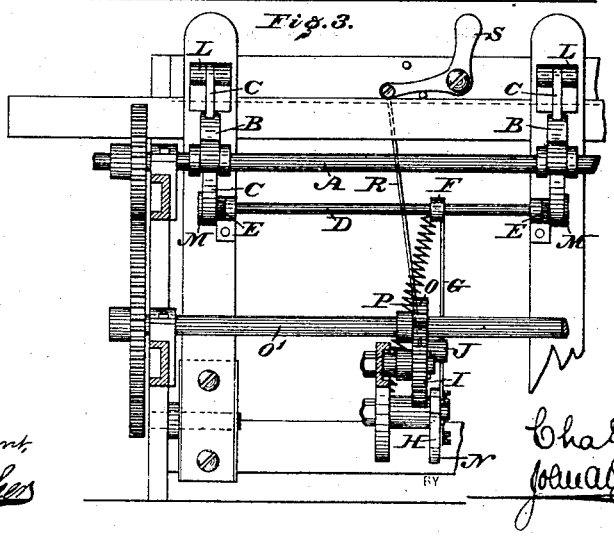


Fig. 3.



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LOOM FOR WEAVING TERRY FABRICS.

SPECIFICATION forming part of Letters Patent No. 346,073, dated July 20, 1886.

Application filed November 9, 1885. Serial No. 182,277. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STROBEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Looms for Weaving Terry Fabrics, also known as "terry-cloth," which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figures 1 and 2 represent vertical sections of a loom embodying my invention, the parts being shown in different positions in the two figures. Fig. 3 represents a vertical section of the loom in line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to that class of looms for weaving terry-cloth, in the production of which fabric two separate warps are required, one called the "body-warp," the other the "terry-warp" for making the loop or pile. This terry-warp is weighted with less friction than the body-warp. The loops are formed by partially beating up certain picks of weft-threads, and afterward further beating up or driving home those picks, in order to cause the terry-warp threads to be drawn off faster than the body-warp threads, causing them to rise up from the body in long or short loops on one or both sides of the cloth, and for any portion of the fabric.

The invention consists in a loom which is not required to be stopped to make the change from plain to terry weaving, or from terry to plain, as will be more fully set forth.

Referring to the drawings, A represents the crank-shaft of the loom driven in the usual way.

B represents the crank-arms or pitmen which give the throw of the crank-shaft to the lay B'.

C represents links or levers pivoted to the lay, the crank-arms being pivoted to these links instead of to the lay direct, as in the usual practice. The links C have slots at one end in which the rollers M work. The said slots have each a slight curve at the bottom concentric with the roller, this tending to keep the rollers in this position. The links C have also projections on the sides through which stop-screws K pass, the latter limiting the upward movement of the rollers M.

L presents stands, which are fastened to the lay and form the pivots for the links C.

D represents a rocking shaft pivoted on the lay-swords, this shaft carrying the roller-supporting arms E and also the working-arm F, said arms all being fastened to the shaft D.

H represents a lever pivoted on the cross-girt of the loom and giving motion to the shaft D.

G is a rod that connects the lever H to the arm F on the shaft D.

I is a gear driven by the gear O on the shaft O', said gear I having a pin with roller J on it that acts on the lever H at every revolution of the gear I.

P represents a spring, which has its lower end fastened to the loom-girt, the upper end being attached to the arm F, this spring tending to keep the rollers M in the upper parts of the slots in the links C, and the lever H, through the medium of the rod G, pressed toward the center of the gear I, as shown in Fig. 2.

N represents a hook pivoted to the loom-girt, said hook coming into action in weaving plain fabrics, when it locks the lever H in one position and keeps the rollers M in the bottoms of the slots of the links C, as shown in Fig. 1, thus giving the lay the same movement at each revolution of the crank-shaft while the hook is engaged.

Q is a lever, pivoted at the same point as the hook N, and having two lugs or projections, N', on its side, between which lugs the hook N works, these lugs tending to press the hook either to lock the lever H or to disengage it, if required. This is facilitated by the lever Q being weighted directly over its pivot or center. When the lever Q is partly moved by the operator to the right or left, it will continue such movement by gravity when the lever H gets into position to be engaged or disengaged.

S represents a hand-lever on the breast-beam of the loom, connected by a rod, R, with the lever Q.

I will now describe the operation of my improvement in weaving, it being understood that the shedding, picking, and take-up mo-

tions are substantially the same as ordinarily used in looms.

The crank and cam shafts A O′ are geared by gear-wheels A′ A″, mounted on each of said shafts and meshing together, and driven in the usual way. While the rollers M are in the bottoms of the slots in the links or levers C the lay will travel forward to a fixed line, this being the cloth making line of the fabric. The roller J on the gear I at each revolution of the latter, if the lever H is not engaged by the hook N, presses down the rear end of the lever H, causing the forward end to rise, and through the rod G and the arm F to rock the shaft D until the rollers M reach the bottoms of the slots of the links C. The spring P, connected with the arm F on the rock-shaft D, keeps the rollers M in the upper part of the slots of the links C when the lever H is free from the hook N and is not acted on by the roller J. When the rollers are in this elevated position, the lay will not travel as far forward as the cloth-forming line, owing to the pivots of the pitmen B having been given a lateral movement toward the lay, thus shortening the distance between the crank-shaft and the lay. It will be understood that during these short movements of the lay the weft-threads will be only partially beaten up. The number of short or partial beats to each full beat may be varied by changing the gears I or O. As arranged in this case, I have two short strokes to each long or full stroke or beat. At each third pick the lever H will be depressed by the roller J on the gear I, causing it to bring the arms E on the shaft D to a horizontal position, thus giving the pivots of the pitmen B a movement away from the lay, and increasing the distance between the crank-shaft and the lay. By this means the lay in its next forward movement will be moved forward to the cloth-making line, beating home the weft-threads and causing the terry-warp threads to be looped or raised from the body of the cloth. The screws K, passing through the side projections of links C, act as stops for the roller-supporting levers E, limiting their upward movement, thus regulating the length of the terry-loops, making them longer or shorter, as desired. The arms F may be given more or less movement by shifting the pivots or screws G′, by which the connecting-rod G is attached to the arm F or to the lever H. When it is desired to do plain weaving, the hand-lever S on the breast-beam is moved to the right, (to the left in Fig. 3,) causing the lever Q to act on the hook M, pressing it toward the lever H, when it will hook under and lock the lever H as soon as the lever is raised to the proper height. The parts will remain in these positions until the hand-lever S is thrown to the left, (to the right in Fig. 3,) thus unlocking the lever H from the hook N, when the loom will be in condition for terry-weaving, all these changes being accomplished without stopping the loom.

The gear I may be placed on an extra shaft parallel with the cam-shaft, or even on the cam-shaft, if so desired. This will be understood by those having knowledge of the art of weaving.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the lay, of the pivoted links C, having curved slots and internally-threaded side projections, C′, screws K, operated in said projections, pitmen B, crank-shaft A, and rocking shaft D, having arms E, carrying rollers M, and means, substantially as described, for operating said shaft D, substantially as and for the purpose set forth.

2. The combination, with the lay, of pivoted slotted links C, having projections C′, screws K, pitmen B, shaft A, rocking shaft D, having arms E and a perforated or slotted arm, F, rod G, pivoted lever H, gear-wheel I, having pin with roller J, and gearing, substantially as described, connecting said wheel I to said shaft A, substantially as and for the purpose set forth.

3. A lay in combination with slotted links pivoted thereto, pitmen pivoted to said links, a crank-shaft, a rock-shaft journaled in the lay and having arms provided with rollers working in the slots of said links, a pivoted lever, adjustable mechanism, substantially as described, connecting said pivoted lever with said rock-shaft, a train of gearing connected with the crank-shaft, and a wheel operated thereby and provided with a roller adapted to operate the said pivoted lever at each revolution of said wheel, all the parts being arranged and operated substantially as and for the purpose set forth.

4. A lay in combination with the slotted links C, the pitmen B, the shaft A, the rock-shaft D, having arms E and F, each of said arms E having a roller, M, working in the slot in one of the said links C, adjustable rod G, pivoted lever H, means, substantially as described, connected with said shaft for operating said lever H, pivoted hook N, adapted to lock said lever H, weighted lever Q, having common pivot with the hook N, and provided with two lugs or stopping-points, all arranged and operating substantially as and for the purpose set forth.

5. A lay having the rocking shaft D, in combination with means, substantially as described, for operating the same, and a locking device consisting of the weighted lever Q and hook N, having a common pivot, the said lever having lugs N′, substantially as and for the purpose set forth.

6. The combination, with the lay, the crank or driving shaft, and the pitmen, of the links C, the link-adjusting arms E, the rock-shaft D, carrying said arms, the operating-lever H, acting on the rock-shaft, connecting mechanism, substantially as described, intermediate of said lever H and rock-shaft D, and means for operating said lever H, the locking-hook N, adapted to engage said lever, the shifting-

lever Q, having lugs on opposite sides of the locking-hook for engaging the latter, the hand-lever S and the rod R, connecting the shifting-lever to the hand-lever, substantially as described.

7. A lay having the rocking shaft D, in combination with means, including a lever, substantially as described, for operating the same, and a locking device adapted to engage said lever and thereby lock said rocking shaft, said locking device consisting of a weighted lever and a hook on a common pivot, the said weighted lever having lugs or stops for limiting the play of said hook, all substantially as described.

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Witnesses:
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