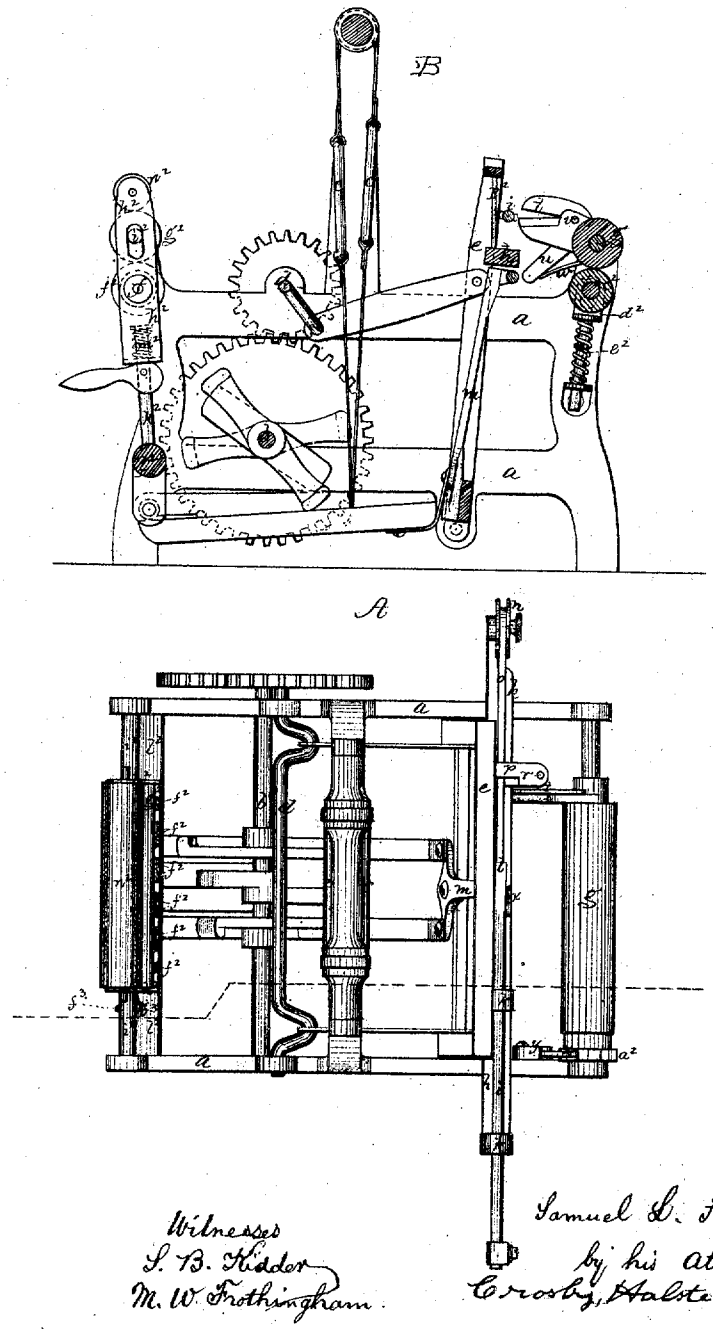
2 Sheets. Sheet 1.

S. L. Fitts,

Rattan Loom.

No. 106,477. Patented Aug. 16, 1870.



Witnesses
S. B. Kidder
M. W. Frothingham.

Samuel L. Fitts
by his Attys.
Crosby, Halsted & Gould

2 Sheets, Sheet 2.

S. L. Fitts,

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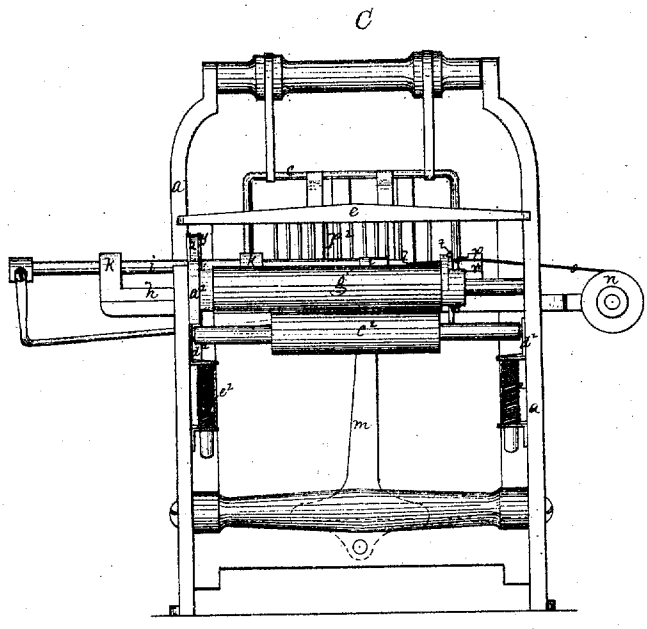
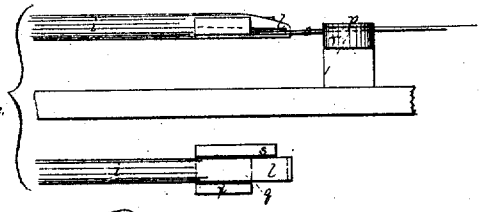
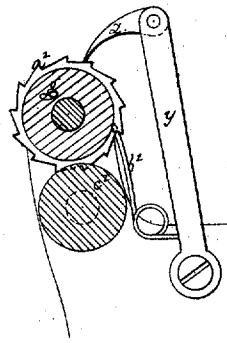




Side view and plan of Nipper-rod, Nippers, &c.



View of Ratchet Wheel, Cloth Roll, etc.

Samuel L. Fitts
by his Attys.
Crosby, Gaston & Foulds

Witnesses
S. B. Adder.
M. W. Frothingham

UNITED STATES PATENT OFFICE.

SAMUEL L. FITTS, OF ASHBURNHAM, MASSACHUSETTS, ASSIGNOR TO GEORGE C. WINCHESTER, OF SAME PLACE.

IMPROVEMENT IN LOOMS FOR WEAVING RATTAN.

Specification forming part of Letters Patent No. **106,477**, dated August 16, 1870.

To all whom it may concern:

Be it known that I, SAMUEL L. FITTS, of Ashburnham, in the county of Worcester and State of Massachusetts, have invented an Improved Loom for Weaving Rattan; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates only to details of construction of looms designed for weaving rattan for chair-seats, &c., the web being composed of a warp and filling, each made of rattan.

My invention consists, first, in the employment of a filling-spool at the end of the shuttle-race or race-beam, and in combining therewith a sliding nipper-rod and nippers, the jaws of the nippers being automatically closed to grasp the end of the rattan, and automatically opened to release the rattan, (when drawn through the shed; also, in combining therewith automatically-worked shears, which sever the filling-piece from the main strip at each beat-up of the lay.

The invention also consists in the employment of a series of warp-containing spools, each having its respective strip of rattan, and the several strips passing between friction-rolls and through heddle-eyes (in the harness-frames) and the dents of the lay, to the cloth-beam; also, in combining, with the warp-spools, a spring-roll for keeping the rattan in place upon the spools and insuring its even delivery.

The drawings represent a loom embodying my improvements.

A shows the loom in plan. B is a sectional elevation of it; C, an end elevation.

a denotes the frame; *b*, the wiper-shaft that operates the harnesses *c* that form the shed. *d* is the crank-shaft that reciprocates the lay *e*. *f* is the warp-roll shaft; *g*, the cloth-roll; *h*, the race-beam, over which is a nipper-rod, *i*, sliding in bearings *k*, and having a pair of nipper-jaws, *l*, at its inner end, the rod being reciprocated by a picker-staff, *m*, actuated by pedals, which are worked by wipers on the wiper-shaft. At one end of the race-beam is a spool, *n*, which carries the filling *o*, wound in a coil upon it, the end of the filling passing under a spring, *p*, which holds it in position to be seized by the nipper-jaws *l*. The jaws are made as springs, or provided with a spring, holding or tending to hold them together, and they are forced apart by a spreader, *q*, the nippers operating as follows: As the lay beats back and the shed is formed, the nippers are driven forward, (the jaws being open,) and as they reach a stop, *r*, upon which the spring *p* is fastened, they embrace the end of the filling-strip presented or held in position by the spring, and a projection, *s*, on one side of the spreader strikes the stop *r*, and is thrown back, (or allows the nippers to continue forward,) so that the nipper-jaws close upon or grasp the rattan. As the lay beats up, the nipper-rod retreats and the filling is carried through the shed. As the lay approaches the cloth-beam, the rattan passes between two blades of a pair of shears, the movable blade *t* of which has an arm, *u*, extending down below the pivot *v*, and this arm being struck by the said beam the shear-blades are closed upon and sever the rattan, the severed pieces constituting the piece of filling introduced into the warp by the nippers. (As the lay beats back, a suitable spring, *w*, opens the shear-blades.) When the nippers have already finished their back movement, another projection, *x*, from the spreader strikes the nearest bearing *k*, and forces the nipper-jaws apart, releasing the strip of filling and leaving the jaws open, ready for their next advance movement to again seize the end of the filling. The lay beats the strip up against the strip previously introduced through the warp, and the race-beam strikes a pawl-lever, *y*, and throws forward its pawl *z*, causing it to rotatively move a ratchet-wheel, a^2, on the end of the cloth-roll, and thus take up the web, the ratchet-lever being thrown back by a spring, b^2, when the lay beats back.

Under the cloth-roll is a friction-roll, c^2, journaled in bearings d^2, supported upon springs e^2, the springs pressing the web against the cloth-roll, (keeping it tight and compact,) and permitting the friction-roll to descend as the web increases in diameter.

The warp-roll shaft *f* contains a series of spools, f^2, corresponding in number to the number of warp-strips of rattan required for the web. Each spool is filled with a coil or

ribbon of rattan, and as the coils project beyond the peripheries of the spool an elastic or elastic-surfaced roll, g^2, is employed to press upon the coils, the shaft f being mounted in a frame, h^2, that moves vertically upon the shaft i^2 of the elastic roll, (which shaft is stationary,) and upon a rod, k^2, projecting up from a cross-beam, l^2, the frame being drawn down by a spring, m^2. The shaft f has a head at one end, and a screw-thread on its other end, on which is a thumb-nut, f^3, the latter serving to tighten up (more or less) the spools against each other, leather or other washers being preferably placed between the end spools and the inside of the frame h^2. This provision, in connection with the yielding property of the frame, allows of an adjustment of the tension of the warp at will, but yet permits each spool to be turned or revolved more or less than the others, as any varying thickness of one strip over that of another may require while weaving. The warp-strips pass from the spools between the roll g^2 and a top roll, n^2, thence through the heddle-eyes of the harness-frames, and thence through the reed-dents p^2 to the cloth-roll.

By a loom thus organized strips of rattan, properly prepared, can be automatically woven into plain or twilled patterns with great speed, and in such manner as to form closely and evenly woven webs for chair-seating, chair-backs, and other uses.

I claim—

1. In combination with the elastic roller, g^2, the series of warp-spools f^2, arranged upon a common axis, the latter provided with a thumb-screw or its equivalent, for compressing the frame h^2, and graduating the tension for the several spools, substantially as shown and described.

2. In combination with the vibrating lay, and moving with it, a filling-spool for holding the rattan filling, substantially as shown and described.

3. The combination, with the filling-spool mounted on the lay, of the spring p upon the vibrating lay, for presenting the end of the filling to be grasped by the nipper-jaws.

4. The combination, with the filling-spool mounted on the lay, of the nippers and sliding spreader q, substantially as described.

Executed June 22, 1870.

SAMUEL L. FITTS.

Witnesses:

JEROME W. FOSTER,

GEO. H. EDDY.