

(No Model.)

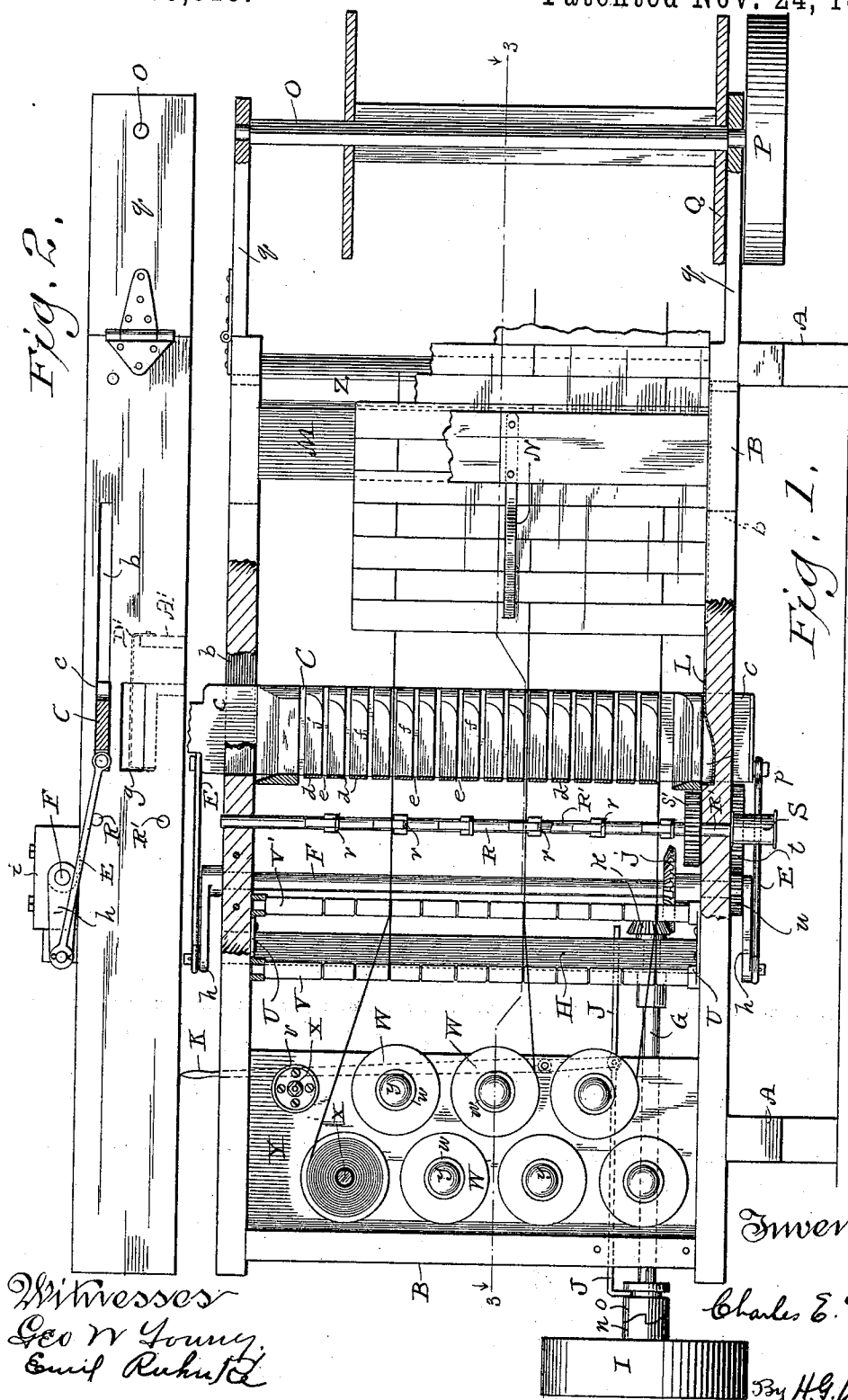
3 Sheets—Sheet 1.

C. E. PARKS.

LOOM FOR WEAVING SLAT AND WIRE FABRICS.

No. 463,815.

Patented Nov. 24, 1891.



Inventor

Charles E. Parks

By H. G. Underwood
C. K. Korneff

Chlorine

(No Model.)

3 Sheets—Sheet 2.

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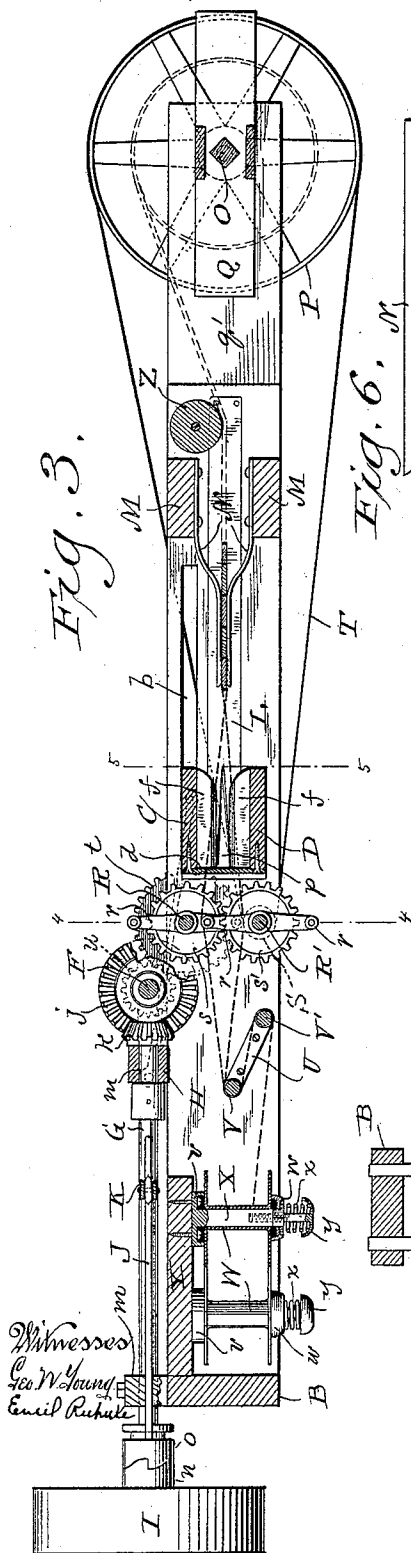


Fig. 3.

Fig. 6.



Fig. 7.

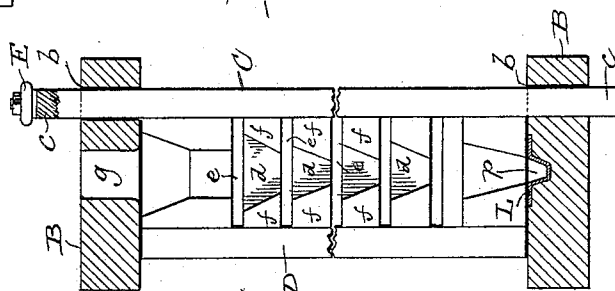


Fig. 5.

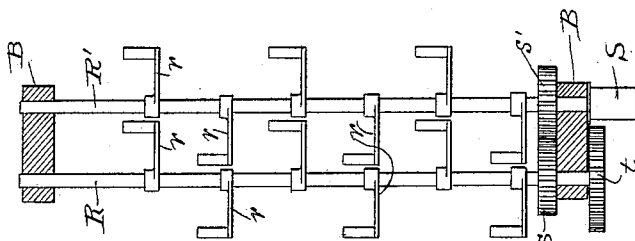


Fig. 4.

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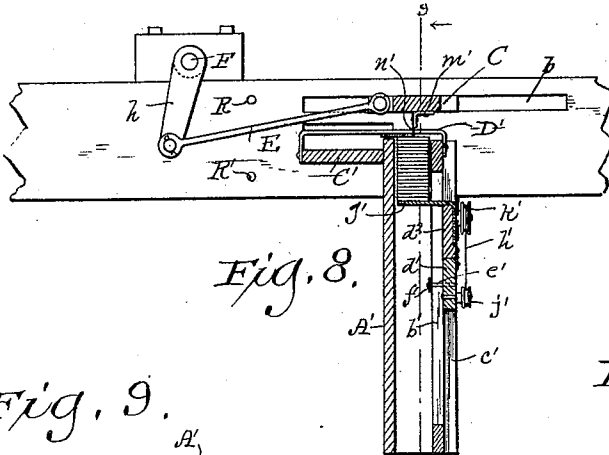


Fig. 8.

Fig. 9.

Fig. 10.

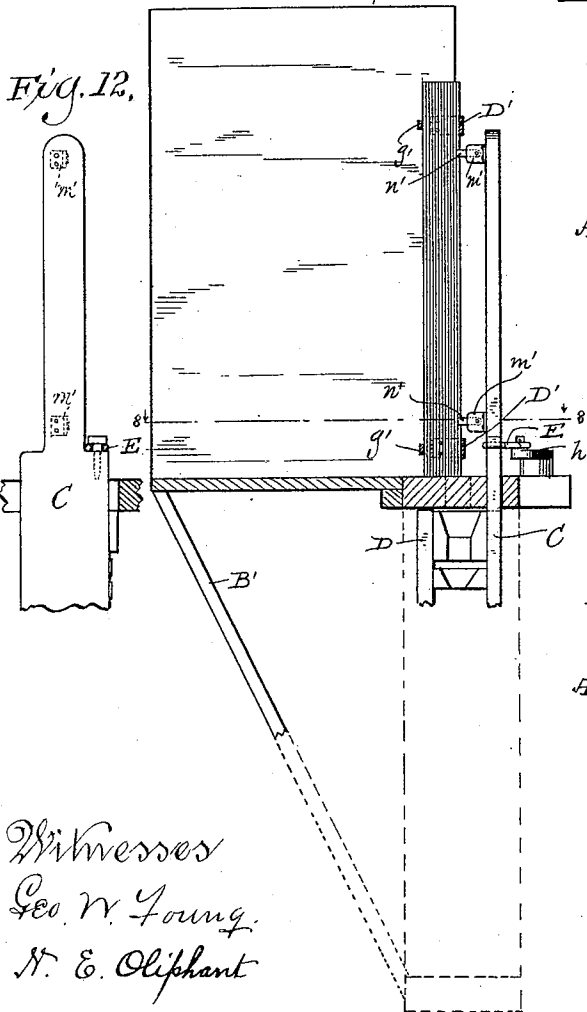


Fig. 12.

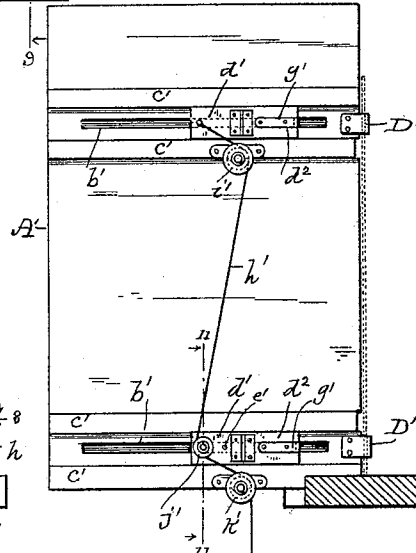


Fig. 11.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES E. PARKS, OF WATERTOWN, WISCONSIN.

LOOM FOR WEAVING SLAT-AND-WIRE FABRICS.

SPECIFICATION forming part of Letters Patent No. 463,815, dated November 24, 1891.

Application filed January 26, 1891. Serial No. 379,091. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. PARKS, a citizen of the United States, and a resident of Watertown, in the county of Jefferson, and in the State of Wisconsin, have invented certain new and useful Improvements in Looms for Weaving Slat-and-Wire Fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a front elevation of my loom, having portions thereof broken away and in section for the purpose of better illustration; Fig. 2, a top plan view partly in horizontal section; Fig. 3, a section on line 3 3 of Fig. 1; Figs. 4 and 5, detail sections respectively taken on lines 4 4 and 5 5 of Fig. 3; Fig. 6, a detail plan view of a gripping device employed in said loom; Fig. 7, a detail view illustrating the crossing of wires that form the warp of the fabric produced by the aforesaid loom; Fig. 8, a detail plan view, partly in section, on line 8 8 of Fig. 9, illustrating an automatic feed mechanism for the slats that form the filling of said fabric; Fig. 9, a section on line 9 9 of the preceding figure; Fig. 10, a detail end view of the slat-feed; Fig. 11, a section on line 11 11 of Fig. 10, and Fig. 12 a detail elevation of a portion of the slat receiver and carrier.

Referring by letter to the drawings, A represents supports for the frame B of the loom, and the upper and lower sides of this frame are slotted, as shown at *b*, to receive the ends *c* of the inner side C of a slat carrier. Plates *d*, arranged at certain intervals to leave interstices *e*, connect the inner and outer sides C D of the carrier, and secured to these sides of said carrier are blocks *f*, in register with the plates and at the same intervals apart, the opposing faces of these blocks being cut away on a bevel, so as to present less surface to slats fed into the receiver and carrier through an opening *g* in the upper side of the loom-frame. The ends *c* of the inner side C of the receiver and carrier are connected by pitmen E with cranks *h* on a shaft F, that has its bearings *i* on the upper and lower sides of

the loom-frame, said shaft being provided with a bevel gear-wheel *j*, in mesh with a pinion *k* on another shaft G, arranged in bearings *m* on a brace-beam H and rear end of the loom-frame.

Loosely arranged on the shaft G is a driving-pulley I, having its hub provided with one section *n* of a clutch, the other section *o* of this clutch being splined on said shaft and suitably connected to a slide-rod J, the latter being joined to a lever K, as best illustrated in dotted lines in Fig. 1, whereby the latter clutch-section may be thrown in and out of engagement with the one on the driving-pulley to start and stop the operation of the loom.

The lower side of the loom-frame is recessed opposite the opening *g* in the upper side thereof to receive the socket end *p* of a plate L, and when a slat is fed to the receiver and carrier it drops into the socket and is thus properly positioned prior to the forward travel of said receiver and carrier, the socket portion of the plate being curved, as shown in Fig. 1, to permit of the slat having an easy rise out of said socket when the aforesaid receiver and carrier is actuated.

Connected to cross-braces M of the loom-frame are spring-fingers N, arranged to come on opposite sides of the fabric produced by the loom, and the rear ends of the fingers are preferably serrated, so as to obtain a better grip on each slat that is beat up in the shed formed by the warp-wires as the operation of weaving the fabric takes places. Hereinafter the fingers N will be termed "grippers," and attention is called to the fact that the serrations thereon are so arranged as to resist rearward movement of the fabric without interfering with the forward movement of the same.

Journaled in forward extensions *q q'* of the upper and lower sides of the loom-frame is a squared shaft O, having a pulley P fast on its lower end. The squared portion of the shaft O between the upper and lower sides of the loom-frame receives a reel Q, that turns therewith, and the forward extension *q* of the upper side of said loom-frame is hinged, so as to be laid back in order that the reel may be slipped on and off said shaft.

Journaled in the upper and lower sides of the loom-frame, in rear of the slat receiver

and carrier, are parallel shafts $R R'$, provided with crosser or spreader arms r , as best illustrated in Fig. 4. These shafts are connected by gear-wheels $s s'$, and the shaft R is provided with another gear-wheel t , that meshes with a pinion u on the shaft F , above described. A pulley S is fast on the spreader-shaft R' , and a belt T connects this pulley with the one P on the reel-shaft O , as shown in full and dotted lines in Fig. 3.

In rear of the crosser-shafts the upper and lower sides of the loom-frame are provided with brackets U , set at an angle to a horizontal line and provided with bearings for grooved rollers $V V'$, this construction and arrangement of parts serving as a means to cause the warp-wires of the fabric to draw evenly from spools W , loosely arranged on spindles X , that project from a wall Y at the rear of the loom-frame. Each spool-spindle has an outturned flange v at its inner end for impingement against the adjacent head of a spool, and the outer end of each spindle is squared to receive a collar w , that is held against the other spool-head by means of a spiral spring x , adjustable as to tension on the stem of a screw y , that has its bearing in said squared end of the spindle. By the means just described the spools are tensioned by their frictional contact with the flanges v and collars w on the spindles, whereby the wire on said spools is not unwound any faster than is necessary.

Arranged in front of the cross-braces M is a pressure-roller Z , that bears against the fabric and guides the same to the reel, the position of this pressure-roller being such that the draw of said fabric is always from the same center, regardless of the amount accumulated on said reel.

In practice the warp-wires are carried from the spools W around in grooves in the rollers $V V'$, then between the crosser-shafts $R R'$, then through the interstices e of the slat-carrier, then under the pressure-roller Z , and finally fastened to the reel Q . The number of the warp-wires may be varied at will, and the distance apart of these wires is regulated by their position with relation to the grooves in the rollers $V V'$. By the rotation of the shafts $R R'$ the crosser-arms r thereon act against the wires in such a manner that while some are raised the remainder are lowered at regular intervals to form the shed for a slat, the latter being placed in the receiver and carrier, as above described. The receiver and carrier being thrown forward by the crank-and-pitman mechanism above described, the slat is thus placed in the shed formed by the action of the crossers against the warp-wires and forced between the grippers N , after which said receiver and carrier is returned to its normal position. The operation of weaving being continued, the wires are drawn off their spools by the action of the crossers, and as each slat is carried forward the fabric is forced on toward the reel Q and the belt T is

just tight enough on the pulleys $P S$ as to cause said reel to partially rotate whenever there is slack in said fabric; otherwise this belt will slip on said pulleys.

In connection with the weaving mechanism above specified I may employ an automatic slat-feed, the one preferred being illustrated by Figs. 8 to 12, inclusive, and hereinafter described.

A feed-box A' extends laterally from the upper side of the loom-frame adjacent to the opening g therein, and the outer end of this box is supported by a brace B' , the latter being illustrated by full and dotted lines in Fig. 9. Extending up from the loom-frame parallel to the opening g therein is a wall C' at a right angle to the rear wall of the feed-box A' , and guards D' connect the wall C' with the front wall of said feed-box, as best illustrated in Fig. 8. The front wall of the feed-box is provided with horizontal slots b' and horizontal guides c' , the latter being arranged in pairs adjacent to the slots. Loosely arranged between each pair of the guides is a sliding block d' , detachably retained in its working position by means of a screw e' , passed through the adjacent slot b' , and a washer f' , arranged on the screw to bear against the inner side of the adjacent wall of the feed-box. Each of the blocks d' has a hinged section d^2 , provided with a finger g' , that extends through the adjacent slot b' in the feed-box to bear against a bunch of slats arranged in said box to be successively fed to the reciprocating receiver and carrier above described, this construction and arrangement of parts being clearly illustrated in Figs. 8 and 10. A flexible device h' is made fast to the upper one of the blocks d' and runs over a pulley i' on the lower guide for the same, thence down over another pulley j' , mounted on the lower one of said blocks, and then over still another pulley k' , arranged on the lower guide for the latter block to connect with the weight E' , as illustrated in Fig. 10.

The upper end of the inner side C of the slat receiver and carrier is vertically extended, as best illustrated in Fig. 12, and provided with right-angled brackets m' , to which I attach spring-fingers n' , the latter passing the open inner end of the feed-box A' as said slat receiver and carrier is reciprocated and being of such length as to come inside the guards D' , as best illustrated in Fig. 8.

In practice the sections d^2 of the sliding blocks d' are swung back on their hinges to bring the fingers g' out of the feed-box, a bunch of slats placed in the latter, and said blocks run outward to raise the weight E' , after which said hinged sections are swung back to bring their fingers in rear of said bunch of slats. The power of the weight E' tends to run the blocks d' forward toward the loom-frame, and thus the innermost slat in the feed-box is held against the guards D' in the path of the spring-fingers n' on the extended upper end of the inner side of the

slat receiver and carrier. When the slat-carrier is on its forward travel, the spring-fingers n' yield to the resistance of the slat in their path; but on the return of said slat receiver and carrier there is sufficient rigidity in said fingers to force the innermost slat off the bunch and out of the feed-box onto the wall C' , from whence it drops through the opening g in the loom-frame into the afore-said slat receiver and carrier. One slat from the bunch having been automatically fed to the receiver and carrier, as above described, the descent of the weight E' causes said bunch to move forward, and thus another slat is brought against the guards D' , this operation being repeated as often as there are slats remaining in the feed-box.

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

1. In a loom for weaving slat-and-wire fabric, the combination of warp-crossers, a device into which the slats are successively fed and which has interstices for passage of the warp-wires, and suitable means for imparting a reciprocative movement to said device, substantially as set forth.

2. In a loom for weaving slat-and-wire fabric, the combination of warp-spools under tension, crossers for the warp, a device into which the slats are successively fed and which has interstices for passage of the warp-wires from the spools, suitable means for reciprocating this device, and an automatic take-up for the fabric, substantially as set forth.

3. In a loom for weaving slat-and-wire fabric, the combination of warp-crossers, a device into which the slats are successively fed and which has interstices for passage of the warp-wires, suitable means for imparting a reciprocative movement to said device, and slat-grippers arranged in the path of the same, substantially as set forth.

4. In a loom for weaving slat-and-wire fabric, the combination of the evener-guides for the wires forming the warp, crossers for the warp-wires, a device into which the slats are successively fed and which has interstices for passage of said warp-wires, and suitable means for reciprocating said device, substantially as set forth.

5. In a loom for weaving slat-and-wire fabric, the combination of rotary warp-crossers, a device into which the slats are successively fed and which has interstices for passage of the warp-wires, and suitable means for imparting a reciprocative movement to said device coincident with the rotation of the warp-crossers, substantially as set forth.

6. In a loom for weaving slat-and-wire fabric, the combination of warp-spreaders, a device into which the slats are successively fed and which has interstices for passage of the warp-wires, suitable means for reciprocating said device, a reel for the fabric, and a pressure-guide for said fabric adjacent to the reel, substantially as set forth.

7. In a loom for weaving slat-and-wire fabric, a reciprocative slat receiver and carrier comprising inner and outer sides having their rear edges united by plates at certain intervals apart and provided with blocks coincident with the plates, the blocks on one side of the receiver and carrier being opposed to those on the other side of the same, substantially as set forth.

8. In a loom for weaving slat-and-wire fabric, a reciprocative slat receiver and carrier comprising inner and outer sides having their rear edges united by plates at certain intervals apart and provided with bevel-faced blocks coincident with the plates, the blocks on one side of the receiver and carrier being opposed to those on the other side of the same, substantially as set forth.

9. In a loom for weaving slat-and-wire fabric, the combination of a slat-carrier, a shaft provided with cranks, pitmen connecting the carrier and cranks, a pair of shafts geared to each other and provided with crosser-arms, one of these latter shafts being geared to the crank-shaft, and a drive-shaft geared to said crank-shaft, substantially as set forth.

10. In a loom for weaving slat-and-wire fabric, the combination of a slat-carrier, a shaft in gear with a drive-shaft and having crank and pitman connections with the carrier, a pair of shafts geared to each other and provided with crosser-arms, one of the latter shafts being geared to the shaft that is connected with said carrier, a pulley on the other of the crosser-shafts, a reel-shaft provided with a pulley, and a belt connecting the pulleys, substantially as set forth.

11. In a loom for weaving slat-and-wire fabric, a spool-holder consisting of a spindle having a squared outer end and its base provided with an outwardly-extended flange, a collar slipped on the squared end of the spindle, a screw having its bearing in said squared end of the spindle, and a spiral spring arranged on the screw between the head of the latter and said collar, substantially as set forth.

12. In a loom for weaving slat-and-wire fabric, the combination of spools under tension, a slat-carrier, a shaft provided with cranks, pitmen connecting the carrier and cranks, a pair of shafts geared to each other and provided with crosser-arms, one of the latter shafts geared to the crank-shaft, and a drive-shaft geared to said crank-shaft, substantially as set forth.

13. In a loom for weaving slat-and-wire fabric, the combination of a slat-carrier, a shaft in gear with the drive-shaft and having crank and pitman connections with the carrier, a pair of shafts geared to each other and provided with crosser-arms, one of the latter shafts geared to the shaft that is connected to the carrier, a pulley on the other of the crosser-shafts, a reel having its shaft provided with a pulley, a belt connecting the pulleys, and a pressure-guide for the fabric adjacent to the reel, substantially as set forth.

14. In a loom for weaving slat-and-wire fabric, the combination of a reciprocative slat-carrier having an extension provided with fingers that yield to pressure in one direction, a
5 feed-box for slats arranged at an angle to the line of the carrier's travel and adjacent to an opening in the loom-frame, a wall at an angle to the feed-box and parallel to said opening, guards connecting this wall and the front wall
10 of said feed-box, and automatically-actuated slides provided with fingers that extend through slots in the aforesaid feed-box, substantially as set forth.

15. In a loom for weaving slat-and-wire fabric, the combination of a reciprocative slat-carrier having an extension provided with fingers that yield to pressure in one direction, a
15 feed-box for slats arranged at an angle to the line of the carrier's travel and adjacent to an opening in the loom-frame, a wall at an angle to the feed-box and parallel to said opening, guards connecting this wall and the front wall of said feed-box, slides working between
20 guides on the latter wall and provided with fingers extended through slots in the same, pulleys arranged on the lower guide for each

slide, another pulley mounted on the lower slide, and a weighted flexible device fast to the upper slide and arranged to run on the several pulleys, substantially as set forth. 30

16. In a loom for weaving slat-and-wire fabric, the combination of a reciprocative slat-carrier having an extension provided with fingers that yield to pressure in one direction, a
35 feed-box for slats arranged at an angle to the line of the carrier's travel and adjacent to an opening in the loom-frame, a wall at an angle to the feed-box and parallel to said opening, guards connecting this wall and the front wall of said feed-box, and automatically-actuated
40 slides having hinged sections provided with fingers that extend through slots in the aforesaid feed-box, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Watertown, 45 in the county of Jefferson and State of Wisconsin, in the presence of two witnesses.

CHARLES E. PARKS.

Witnesses:

E. J. BRANDT,

CARL E. EMMERLING.