

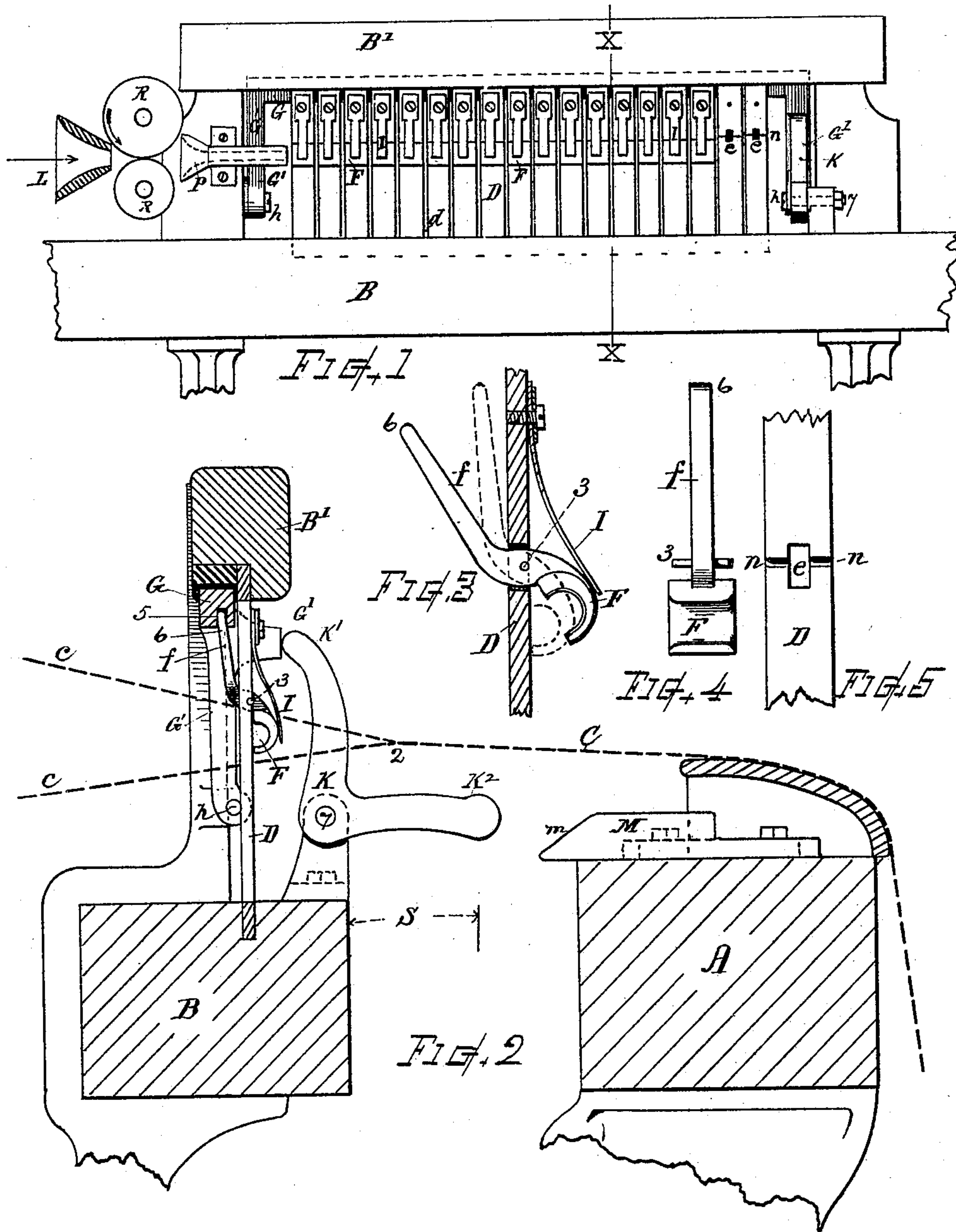
No. 618,820.

Patented Feb. 7, 1899.

F. E. ARROUQUIER.  
LOOM.

(Application filed May 9, 1898.)

(No Model.)



Witnesses..

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# UNITED STATES PATENT OFFICE.

FREDRICK E. ARROUQUIER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR  
OF ONE-HALF TO CHARLES H. PALMER, OF SAME PLACE.

## LOOM.

SPECIFICATION forming part of Letters Patent No. 618,820, dated February 7, 1899.

Application filed May 9, 1898. Serial No. 680,217. (No model.)

*To all whom it may concern:*

Be it known that I, FREDRICK E. ARROUQUIER, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Looms, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My invention has reference to looms for weaving straw mattings or other material of a stiff or wiry nature or in which the filling substance is furnished in separate lengths corresponding to the width of the fabric, and particularly relates to that part of the loom known as the "reed," "slay," or "batten" and devices combined therewith, the object being to provide in connection with the reed efficient means for supporting and directing the introduced weft-strand during its insertion and for then releasing the said strand within the shed, so as to be properly laid in the fabric, thereby rendering the operation of the mechanism sure and rapid; also, to provide a loom-reed having combined with its bars a series of guiding-eyes or movable loops for receiving the straw or filling strand and means for automatically opening said guide-eyes while the beating-up action is effected. These objects I attain by mechanism the nature and operation of which are illustrated in the accompanying drawings, wherein—

Figure 1 is a front view of a loom-reed embodying the features of my invention. Fig. 2 is a transverse section at line X X on a somewhat larger scale. Fig. 3 is a detail section showing the reed-bar and guide devices. Fig. 4 is a rear view of the guide device. Fig. 5 is a front view of a portion of a reed-bar.

Referring to parts, A denotes the breast-beam of a loom; B, the lay or reed-carrier, which is operated toward and from the breast-beam by any well-known or suitable means for beating up the weft-strands as the fabric is woven.

B' is the hand-rail or top part of the lay in which the head of the reed is supported.

D indicates the reed, consisting of a slitted plate or series of upright bars having narrow spaces *d* between them for the passage of the warp-threads *c*, which threads unite in the fabric C at the point 2 and which can be actuated to form a shed by any desired arrangement of harnesses and shedding mechanism (not shown) operating in well-known manner.

Combined with each of the reed-bars or any required number of them I provide a semitubular strand-guiding device F, preferably consisting of a semicircular eye or loop arranged directly upon the face of the reed and having a shank-lever *f* attached thereto and fulcrumed at 3, so that the guide-loop can close down against the reed-surface or swing outward therefrom at its lower edge, as indicated in Fig. 3. The guide-loop is best made substantially the same width as the reed-bar, while its shank *f* is narrower and curved to pass through a slot *e* in said reed-bar, bringing the end of the shank in rear thereof. The guide device is provided with laterally-projecting fulcrum-pins 3, (see Fig. 4,) and the face of the reed-bar is transversely grooved at *n*, (see Fig. 5,) the fulcrum being formed by laying said pins into said grooves, where they are retained by the force of the springs I, that are provided for closing the guides.

When closed down against the face of the reed, the series of eyes or guide-loops form a closed guideway, space, or channel, into and through which the filling-strand or straw can be passed by its endwise movement and wherein it is supported and directed for rapidly entering the warp-shed without breaking or deviating from its course and from which guideway it cannot escape laterally until said guide-loops are swung outward from the face of the reed, thereby opening the guide-eye, so that the straw or strand can readily escape or be discharged therefrom into the shed by lateral or downward movement.

The loop-eyes F are best slightly rounded on their edges to avoid any liability of the straw catching thereon as it is shot endwise into the reed.

G indicates a bar for operating the series



of guides F. Said bar is in the present instance disposed at the back of and parallel with the reed just beneath the top or hand rail B' and is connected at its ends with swinging arms G', pivoted to suitable earings at h, or may be otherwise supported in a manner to afford a limited backward-and-forward movement for said bar while maintaining its parallel relation to the plane of the reed. A longitudinal groove 5 is formed in the under side of the bar G, within which the ends G of the guide-shanks f engage, so that movement of said operating-bar imparts simultaneous retractive movement to all of the strand-guiding devices for opening the guide-eyes. When the bar is released, the guide-eyes close by the resilient action of the springs I, which are fixed to the front of the reed.

K indicates an angle-lever fulcrumed at 7 to an ear fixed on the lay B and having its upright arm K' adapted for pressing backward the operating-bar G, while its horizontal arm K<sup>2</sup> extends forward for contact with a tappet-piece M, fixed on the stationary breast-beam A, and having an inclined end surface m, that elevates the arm K<sup>2</sup>. The angle-lever K effects rearward movement of the bar G and an opening action of the guide loops or eyes F as the lay approaches the breast in beating up the weft.

R R indicate feed-rolls mounted at the end of the reed to be rotated in the direction indicated by any suitable driving appliances. P indicates a tubular guide for directing the strand from the rolls R into the guideway along the face of the reed, and L indicates a funnel-shaped entrance-mouth for directing the introduced end of a straw or strand to the bite of the feed-rolls.

In the operation the straws or strands or other weft material, cut to the required length for the particular width of fabric to be woven, are respectively introduced one at a time as the lay swings back and the shed is opened by endwise presentation thereof, by hand or by some suitable automatic mechanism, directly through the mouth L to the feed-rolls R. Said feed-rolls by their rotary action inject the straw endwise through the guide-loops F along the face of the reed D with a quick and sure action, the loops supporting and directing the strand or straw and preventing its crumpling, breaking, or interfering with the warp-threads as it is shot forward across the reed-face within the open warp-shed while the lay is at backward position. Then as the lay moves forward (see movement-line s) the end K<sup>2</sup> of the angle-lever strikes the cam-surface m of the tappet-piece and said lever presses back the bar G, thereby causing retraction of the guiding devices F, which swing outward, as shown by full lines on Fig. 3, thus allowing the straw or other strand to escape therefrom downward for its discharge into the warp-shed in time to become beaten

up into the fabric as the lay and reed reach their forward position. As the lay moves backward the angle-lever is released from the cam-surface m and the guide-loops F are closed against the face of the reed by their springs I, ready to receive another straw, and the operation is successively repeated as the weaving operation goes on.

The length of the guide-eye in direction transverse to the reed may be made more or less, as desired, and any number of such guides may be used for covering the length of the full reed-face or any portion thereof, as desired.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination, with a loom-reed comprising a slitted plate or series of upright bars with spaces between, of a retractible strand-supporting guide consisting of a forwardly-swinging loop arranged upon the face of the reed, for the purpose set forth.

2. The combination in a loom-reed, of the reed-plate comprising a series of upright bars and spaces, the semitubular strand-guiding device pivotally arranged on the front of the reed-plate to close directly upon the face of said reed-bars, feed mechanism adapted for injecting a straw strand endwise into said guiding device, and means substantially as described for retracting said guide devices from the reed-surface to discharge the straw into the shed.

3. In a reed mechanism for matting-loom, a reed provided upon its respective reed-bars with guide loops or eyes adapted for the reception of the filling-straw introduced by endwise movement thereof, said guide-loops carried by levers fulcrumed above their eye, yieldingly spring-pressed for closure of the eye against the reed-bar, and movable for opening the guide to permit delivery of the straw therefrom; in combination, with a guide-operating bar controlling said guide-loop levers, a bar-actuating lever, and means for imparting motion thereto as the reed advances and recedes with the beating-up action of the lay, substantially as set forth.

4. A reed mechanism for matting-loom, comprising in combination a series of reed-bars with spaces between, a series of guide-eyes each having a projecting shank or arm fulcrumed on the respective reed-bars, the grooved actuating-bar engaging with said arms and common to the series for simultaneously operating said guide-eyes, and means for moving said actuating-bar to open and close the guide-eyes, for the purpose set forth.

5. The combination with a reed-bar, of the swinging lever-guide fulcrumed on said reed-bar and having therein a recess or space that serves as a strand supporting and guiding eye closable against the face of the reed-bar, a spring normally pressing said guide-eye toward the face of the reed, and a guide-re-



tracting device and actuating means therefor brought into action with the movement of the reed-carrier or lay, substantially as set forth.

5 6. The combination of the reed-bar slotted at *e* and having the grooves *n*, the guide-loop lever provided with bearing-pins 3 fulcrumed in said grooves, the spring I normally pressing said guide-loop toward the reed-bar, and

retaining said fulcrum-pins in their grooves, substantially as set forth.

Witness my hand this 28th day of April, 1898.

FREDRICK E. ARROQUIER.

Witnesses:

CHAS. H. BURLEIGH,  
ELLA P. BLENUS.

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