

E. B. HASTINGS, W. E. NICHOLS, & W. L. MERRITT.

Looms for Weaving Slats, Window-Shades, &c.

No. 135,427.

Patented Feb. 4, 1873.

Fig. 1.

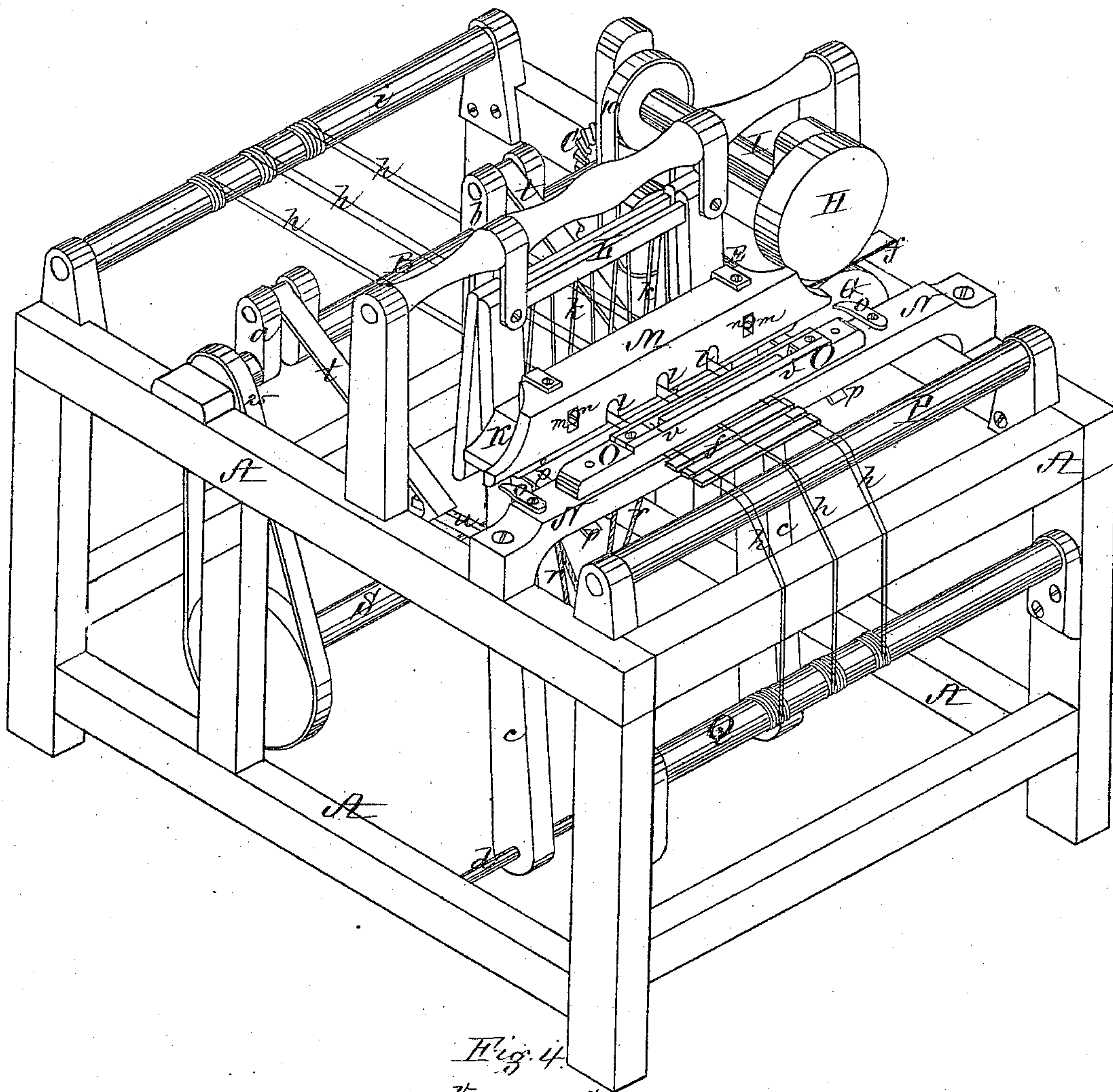
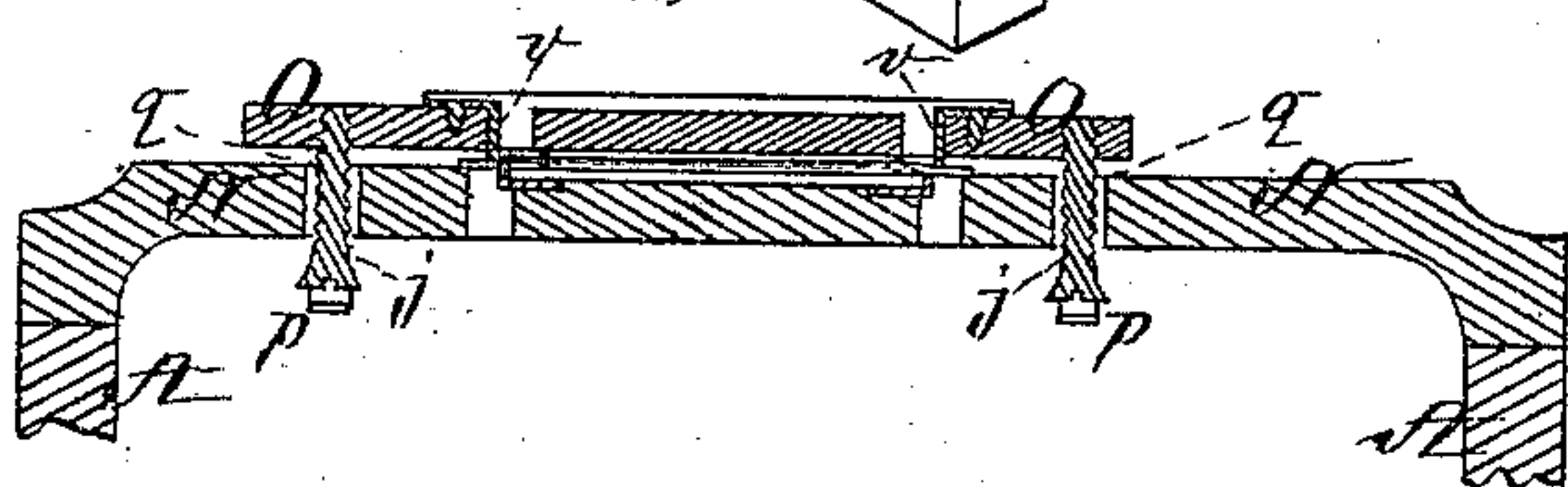


Fig. 4.



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Fig. 2.

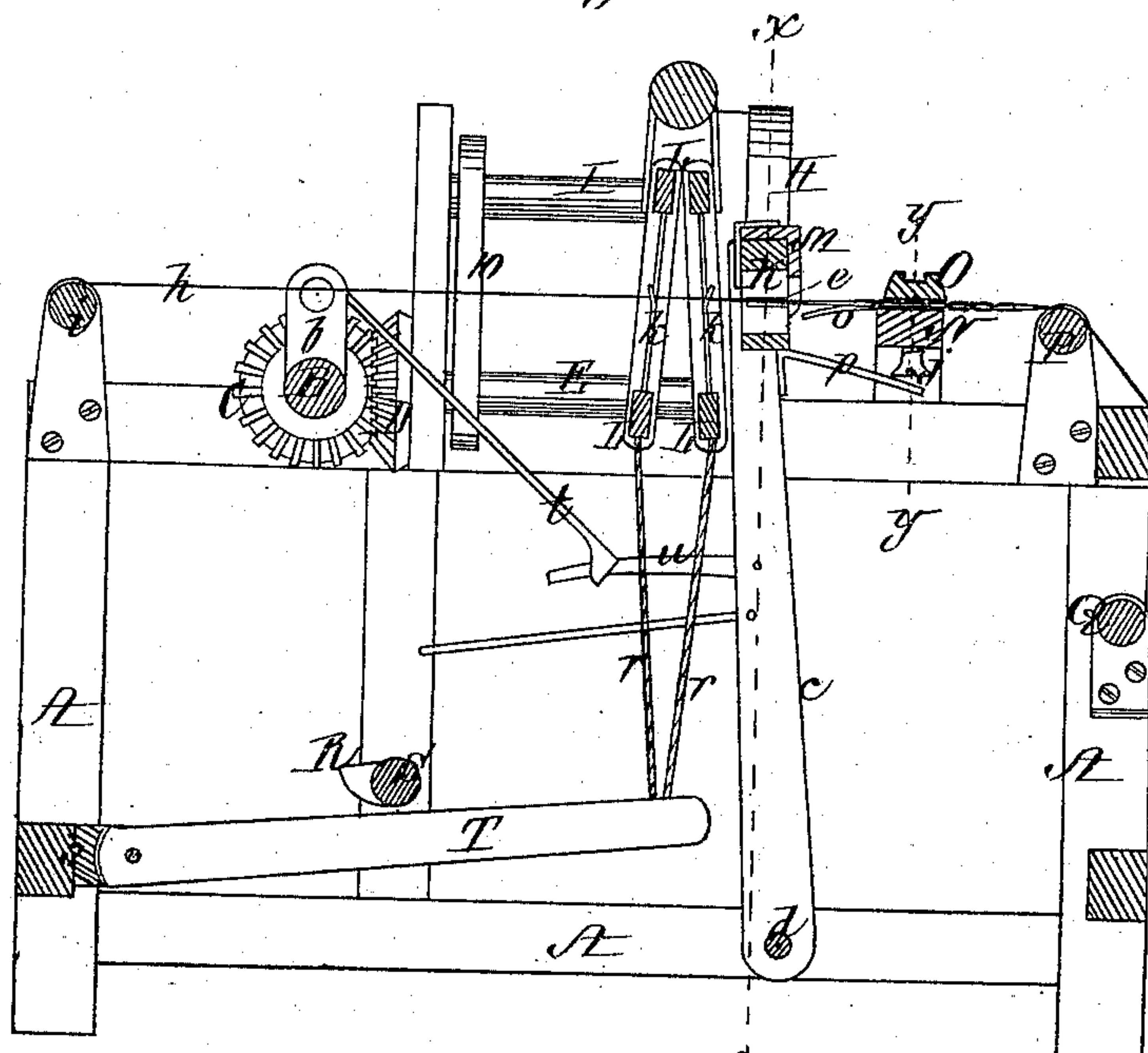
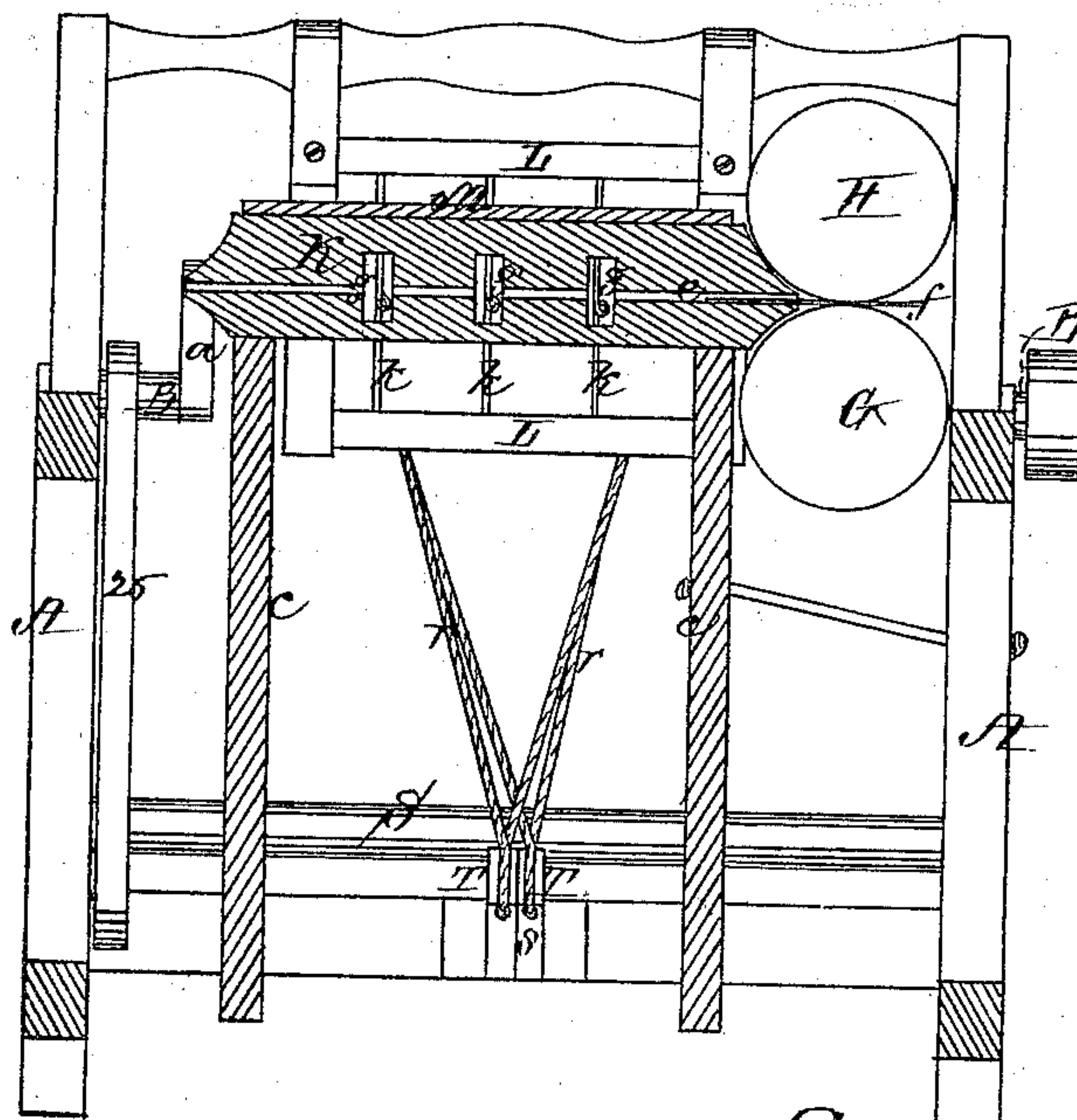


Fig. 3.



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UNITED STATES PATENT OFFICE.

EMORY B. HASTINGS, OF PALMER, AND WILLIAM E. NICHOLS AND WARREN L. MERRITT, OF TEMPLETON, MASSACHUSETTS; SAID HASTINGS AND NICHOLS ASSIGNORS TO SAID MERRITT.

IMPROVEMENT IN LOOMS FOR WEAVING SLATS, WINDOW-SHADES, &c.

Specification forming part of Letters Patent No. 135,427, dated February 4, 1873.

To all whom it may concern:

Be it known that we, EMORY B. HASTINGS, of Palmer, in the county of Hampden and State of Massachusetts, and WILLIAM E. NICHOLS and WARREN L. MERRITT, both of Templeton, in the county of Worcester and State aforesaid, have invented certain Improvements in Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of a loom, constructed in accordance with our invention, for weaving window-shades composed of strips of wood, paper, &c. Fig. 2 is a longitudinal vertical section through the center of the same. Fig. 3 is a transverse vertical section on the line *x x* of Fig. 2. Fig. 4 is a section on the line *y y* of Fig. 2.

Our invention relates to that class of looms employed in the manufacture of window-shades the filling of which is composed of strips of wood, paper, or other material. The great difficulty heretofore experienced in weaving the class of goods named has been that no means were provided whereby the strips of wood can be supported while being introduced into the "shed," so as to prevent them coming in contact with the warps, which causes the splinters to catch in them and either destroy their regularity or break them. Our invention consists in a slotted lay, into which the strips composing the filling are fed by a pair of feed-rolls placed in proximity therewith, the lay being provided with a cap which is stationary thereon, and serves as a guide to keep the strip in place while being fed into the lay, and is made to move upward so as to allow the strip to be released from its slot in the lay when it is beating forward; and our invention also consists in certain inclines secured to one of the cutter-bars, or elsewhere, for causing the ascent of the cap previous to feeding the strip between the knives to be cut the proper length. Our invention also consists in a pair of cutter-bars provided with knives or cutters, one cutter-bar being stationary, and the other being made to rise or move upward by the movement of the lay, either by the ac-

tion of inclines secured thereto, or by any other suitable means.

To enable others skilled in the art to understand and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawing, A represents the frame-work, in suitable bearings, in which is driven a shaft, B, provided with cranks *a b*. At one end of the crank-shaft, inside the frame-work, is placed a bevel-gear, C, which drives a bevel-gear, D, on one end of a short horizontal shaft, E, on the other end of which revolves a roll, G, which is tangent to the periphery of a similar roll, H, revolving on a shaft, I, similar to the shaft E, the two rolls revolving at equal rates of speed by means of the belt 10. K is a horizontal beam extending across the tops of two arms, *c*, the lower ends of which are secured to a transverse shaft, *d*, which rests loosely in the frame-work, and is free to rock or vibrate therein. This horizontal beam K serves as the lay to beat up the filling, and is provided with a slot, *e*, the direction of which is in the prolongation of a horizontal line leading from the centers of the peripheries of the rolls at their point of contact—or, in other words, in a line tangential with the rolls where they touch each other—the object of the slit *e* being to receive the strip *f* composing the filling as it passes through the rolls. The lay K is provided with openings *g* for the passage of the warps *h*, which are conducted from a series of spools placed upon creels (not shown) around a tension-roller, *i*, and through the heddles *k* of the harness L to the weaving-point. M is a sliding cap resting on the lay, and extending down over its side so as to close the open side of the slit toward the weaving-point, and thereby prevent the displacement of the strip until the appointed time. The cap is also provided with openings *l* similar to those *g* for the passage of the warps, and has a slot, *m*, at each end for the reception of a screw, *n*, by which construction the cap is kept snugly over the open side of the slit to keep the strip in place therein until the lay is vibrated forward near to the weaving-point, when the under side of the ends of the cap are

carried up inclines *o o* secured to the upper side of the lower or stationary cutter-bar N, extending over and secured to the top of the frame-work.

When the lay arrives near the weaving-point the cap has been elevated by the inclines sufficiently to uncover the open side of the slit, simultaneously with which the warps spring together and grasp the strip, which is then pressed or beat forward by the lay to its place to form the fabric, which then passes between the stationary cutter-bar N and a movable cutter-bar, O, provided with knives *v v* which cut off the ends of the strip to make it conform to the required width of the fabric, after which it is drawn over a guide-roller, P, to the take-up roller Q. The upper or movable cutter-bar O is operated by the movement of the lay, each end of which is provided with an incline, *p*, which comes in contact with the under side of a lug, *j*, on each end of the movable bar O, each lug projecting through a slot, *g*, made in each end of the lower or stationary cutter-bar. The time of raising the movable cutter-bar is immediately before the lay beats the strip thereunder to cut it the required length, after which the lay is vibrated back, and the movable cutter-bar O falls into its original position, and by its weight trims the ends of the filling. (See Fig. 2.) The harness L containing the heddles *k* are moved up and down alternately by cams R on the shaft S, acting on levers T T, to the outer ends of which the harness is connected by cords *r r*, the inner ends of the levers being pivoted to a projecting portion, *s*, of the frame-work. Motion from the crank-shaft is communicated to the shaft S by a belt, 25. The throw of the lay forward is effected by arms *t t*, connected with the cranks *a b* on the shaft B, the outer ends of the arms *t t* being guided into contact with the arms *c* of the lay K by projecting pieces *u u*, on which they slide.

The mechanism for actuating the lay may be other than that shown and described; for instance, cams, either slotted or not, may be employed for this purpose; and levers and cams may be used instead of inclines for operating the upper or movable cutter-bar; and revolving cutters may be substituted for those described without departing from the spirit of our invention. In practice we substitute gears for the belts 10 25.

We intend to apply a liquid sizing to each of the under selvage warps, by conducting the fabric over a pair of rolls or pulleys placed on the guide-roller P, the peripheries of the rolls revolving in receptacles containing the sizing.

It is evident that a loom containing our improvements may be used to advantage in the manufacture of wire-netting.

Claims.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The lay K, with its slit *e*, in combination with the sliding cap M and inclines *o o*, operating substantially in the manner and for the purpose set forth.

2. The cutting-devices consisting of the stationary bar N and movable bar O, constructed and arranged as described, in combination with the lay K having the incline *p* for raising the bar O, substantially as and for the purpose set forth.

Witness our hands this 10th day of October, A. D. 1872.

EMORY B. HASTINGS.
WILLIAM E. NICHOLS.
WARREN L. MERRITT.

In presence of—

ABBY C. STONE,
E. WYMAN STONE.