(No Model.)

L. E. ROSS.

SHUTTLE MOTION FOR LOOMS.

No. 383,077. Patented May 15, 1888.

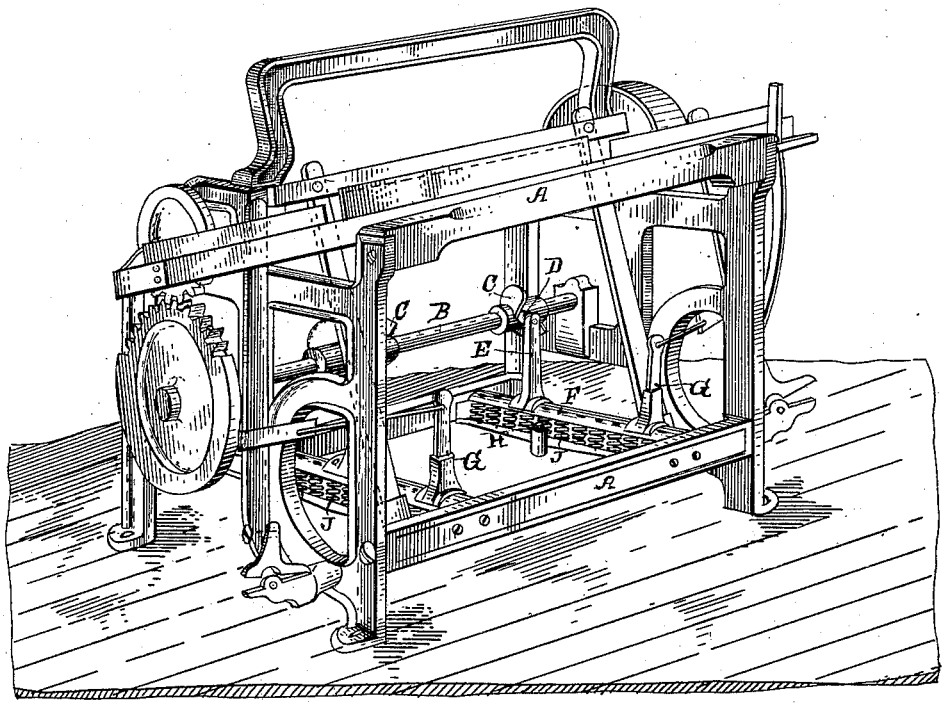

Fig. 1.

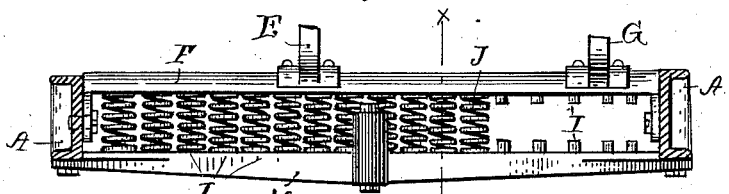

Fig. 2.

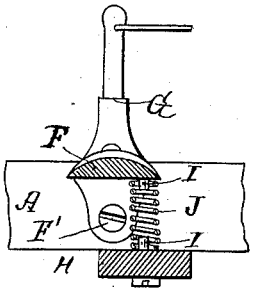

Fig. 3.

Witnesses.
Thomas Hobday.
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UNITED STATES PATENT OFFICE.

LESTER E. ROSS, OF ST. PAUL, MINNESOTA, ASSIGNOR TO THE ROSS LOOM COMPANY, OF NASHUA, NEW HAMPSHIRE.

SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 383,077, dated May 15, 1888.

Application filed January 5, 1888. Serial No. 259,846. (No model.)

To all whom it may concern:

Be it known that I, LESTER E. ROSS, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Shuttle-Motions for Looms, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to apparatus for propelling the shuttle in looms, and is in the nature of an improvement upon the devices set forth in my patent, No. 233,551, dated October 19, 1880, for "shuttle-motion for looms." In said former patent I mounted a series of short coiled springs on a fulcrum-shaft as an axis common to them all, and while one end of each spring was secured to a rigid cross-bar of the frame the other end of each was connected to a rocking plate or bar, termed a "spring-cover." This vibrating cover had erected upon it the picker-stick arm, and also another rigid arm acted upon by a spiral cam to press both arms back against the resistance of the series of springs, the recoil of which, when suddenly released, served to drive the shuttle as required. The springs thus arranged were subject to very severe strains, and in case of breakage of one or more of them it was necessary to remove the fulcrum-shaft from one or both of its bearings, detach from it endwise all the springs between the end and the broken one, substitute a new one, and replace the others properly engaged with the cross-bar and vibrating cover. The delay and difficulty incident to such changes are obviated by my present improvement, under which any given spring can be removed and replaced without disturbing the others.

In the drawings, Figure 1 represents parts of the loom-frame, showing my invention applied thereto. Fig. 2 is a front view of the series of springs which actuate the picker-stick, arranged according to my present invention. Fig. 3 is a cross-section on line *x x* of Fig. 2.

The loom-frame A has on its picking-shaft B two spirally-flanged cams, C, which in their rotation act upon anti-friction rollers D at the upper ends of arms E, which project upwardly from the vibratory spring-covers F. Such action by the cams vibrates the arms E, and with them the picker-stick arms G, also erected on the spring-covers F, about as shown in my former patent. The cams are reversed on the shaft B, and they act alternately on the two arms E, first throwing aside one of them and then the other, compressing the series of springs connected with each spring-cover alternately. The reaction of the springs, when the roller D becomes disengaged from the cam C, throws the shuttle alternately to right and left.

The spring-cover F is pivoted at each end, as at F′, Fig. 3, and beneath one of its edges is a range of short vertical spiral springs, J, each standing endwise between the free edge of the cover F and the upper surface of a fixed cross-bar, H, so that each spring is alternately compressed and elongated as the arm E on its cover F is vibrated. The under surface of the spring-cover at its free edge and the upper side of the cross-bar H have each a succession of short studs, I, to engage the ends of the several springs and retain them in their position. When any one spring becomes broken, it is readily detached, and a new one can be introduced by placing one end over its stud and then compressing and shortening it sufficiently to pass the other end over the other stud. The combined force or power of the range of springs may thus be increased or diminished at will by varying the number of springs in the line, as may be desired, without dismembering the structure to add to or take from the number.

I am aware of the patent to Smith, No. 133,493, dated November 26, 1872, for loom picking mechanism, in which is shown at each end of the frame a horizontally-vibrating lever connected at its free end to the picker-staff by an adjustable rod, said lever being actuated by a rotating cam and by a single spiral spring compressed thereby. The arrangement and combination of parts is very dissimilar to mine, and is such as to render a high speed impossible. I disclaim all that is therein set forth.

My present invention may be further distinguished from that shown in my former patent by its greater simplicity of construction, the complete independence of each spring as to insertion and removal, the entire omission

of the fulcrum-shaft for the series of springs, and of separate perforation of the cross-bar and spring-cover to receive the two ends of each spring.

I claim as my invention—

The rigid cross-bar H, the laterally vibrating spring-cover F, and the arms E and G mounted thereon, in combination with the series of vertical and separately-removable springs J, and the corresponding series of studs, I, serving to hold said springs in place, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of August, A. D. 1887.

LESTER E. ROSS.

Witnesses:
W. T. DRAKE,
L. E. OGLE.