

(No Model.)

F. K. WRIGHT.

POSITIVE SHUTTLE MOTION FOR LOOMS.

No. 299,610.

Patented June 3, 1884.

Fig. 1.

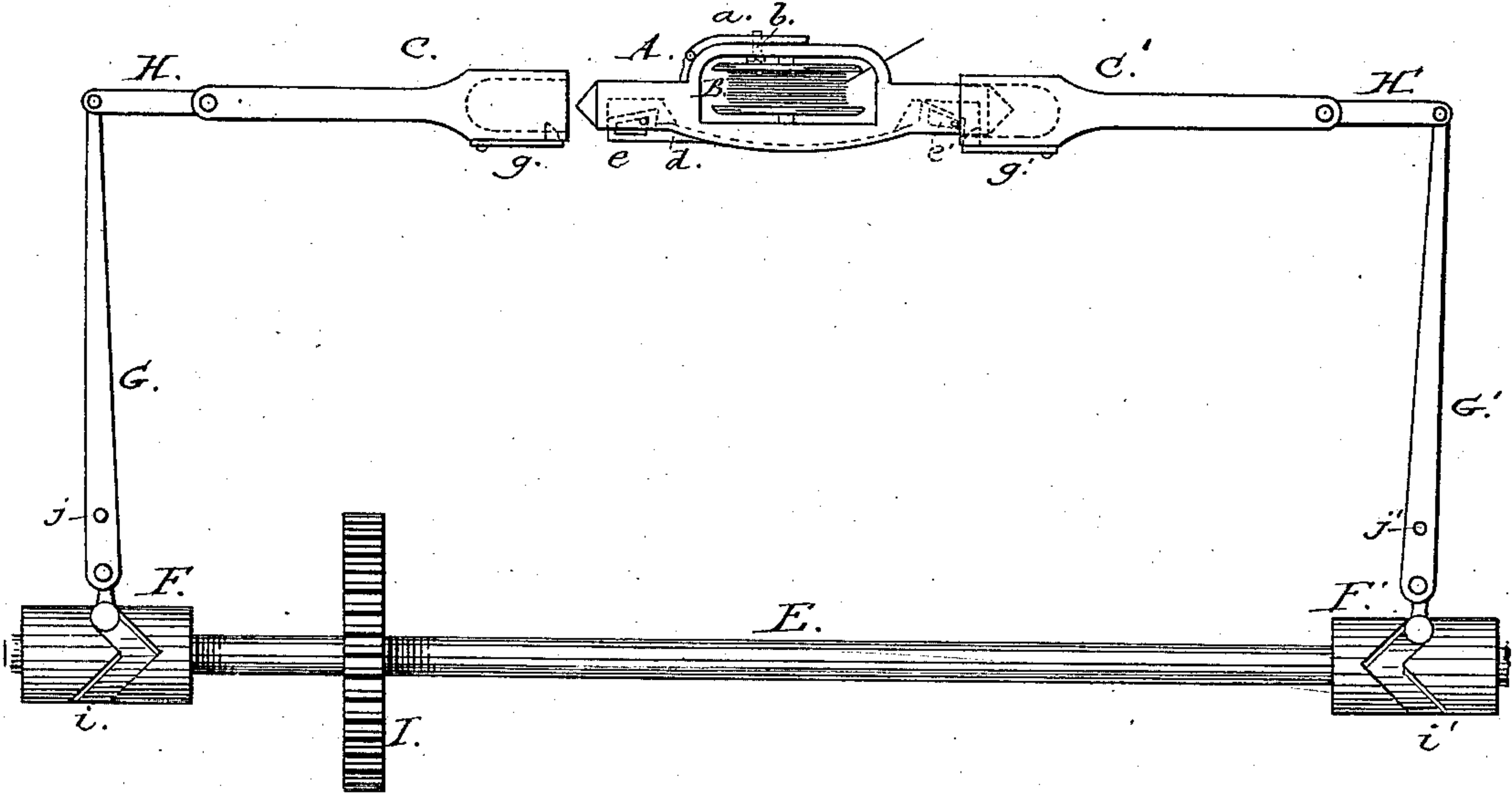
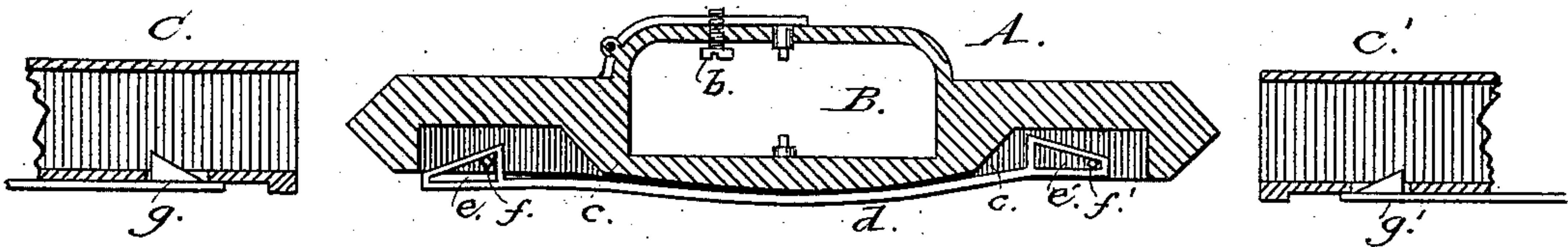


Fig. 2.



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# UNITED STATES PATENT OFFICE.

FREDERICK K. WRIGHT, OF HOMER, NEW YORK.

## POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 299,610, dated June 3, 1884.

Application filed January 23, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK K. WRIGHT, a citizen of the United States of America, residing at Homer, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Positive Shuttle-Motions for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of shuttle-motions in which the shuttles are moved through the warp from opposite sides of the loom by being transferred from one arm operating from one side of the loom to another arm operating similarly from the other side of the same.

My invention consists of the combination, with a shuttle provided with a longitudinally-movable spring, of carriers located on either side of the loom, also provided each with a spring adapted to grasp automatically and alternately and in a like manner release said shuttle, and thus propel it with the weft back and forth through the warp of the loom, all of which will be fully set forth hereinafter.

In my drawings, Figure 1 is a plan view of the shuttle and associated parts. Fig. 2 is a longitudinal section through the shuttle and carriers.

Similar reference-letters indicate like parts in both figures.

Referring to the drawings, A is the shuttle, formed preferably of metal, having an opening, B, to receive a bobbin, which is preferably of the circular form. On one side of the shuttle-body is a hinged spring *a*, to the free end of which is fixed a journal-bearing for one journal of the bobbin. The other journal-bearing of the bobbin is formed in the opposite wall of the opening B. A set-screw, *b*, serves to regulate the tension of the spring *a* and increase or diminish the bearing of said spring upon the bobbin. On one side of the shuttle-body opposite to the spring *a* is formed a groove, *c*, which follows the curved contour of said side, adapted to receive a straight spring, *d*, provided with V or wedge shaped openings or slots *e e'*. The bottom of the groove *c* is curved, as shown in Fig. 2, and forms a rock-

ing or curved base for the spring *d* to ride over, whereby the said spring has its ends thrown outward when they are forced toward the end of the shuttle in either direction. Pins *f f'* pass through the shuttle-body, and respectively the slots of the said spring *d*, and limit the longitudinal and lateral movements of the latter, as will be hereinafter mentioned. The ends of the shuttle A are pyramidal or conical in form to present proper contact-surfaces to the bevel surfaces of certain barbed springs, to be immediately mentioned.

C C' are carriers which have enlarged hollow ends, forming sockets for the ends of the shuttle A. These sockets are provided with slots, which receive the barbed ends of springs *g g'*, which barbed ends normally extend through said slots and within the sockets or recesses of the carriers. The spring *d* has a length less than that of the slot in which it rests, and when moved longitudinally spaces are formed at one and the other of its ends, to receive the barbs of the springs *g g'*.

E is a shaft journaled in the supporting-frame of a loom in such a location as not to interfere with any of the moving parts, and it is provided at its ends with cylinders F F', having cam-grooves *i i'* of the form shown in the drawings, partly annular and partly zig-zag. Levers G G' are pivoted at points *j j'*, which represent some fixed parts of the supporting-frame, and their long arms extend to a line which represents the line of motion of the shuttle as it is driven and drawn through the warp. Short arms H H' connect said levers G G' with the carriers, and serve to compensate between the oscillating movement of the former and the reciprocating movement of the latter. At the ends of the short arms of levers G G' are globes, which fit into the cam-grooves *i i'*. The rotation of the shaft E is effected by means of a spur-wheel, I, which connects indirectly with the source of power, and as said shaft revolves the levers G G' vibrate simultaneously toward and from the middle of the loom to reciprocate the carriers C C'.

The manipulation of the shuttle may be described as follows: Let us suppose that the carrier C, by its barbed spring, has taken hold



of the shuttle by its left-hand end—that is to say, the left-hand end of the shuttle has entered the socket of the said carrier. By this entry the spring *d* has been driven to the right by contact with the end of the carrier C, and by the pin *f* drawn flush with the surface of the shuttle-body on the left-hand side, the beveled end of said shuttle-body has thrown the barbed spring *g* on the carrier C out, and the latter has dropped into the space left between the end of the spring *d* and the left-hand wall of the spring-groove. The shaft E, now rotating, moves the carrier C to the left, and draws with it the shuttle to its limit in this direction, and then returns the same. At the same time, while the lever G is being moved, the carrier C' is reciprocated outward and then inward toward the right-hand end of the shuttle. The moment that the right-hand end of the shuttle enters the socket of the carrier C' the end of the latter forces back the spring *d*, which, being drawn into the slot of the shuttle-body at its right-hand end laterally by the pin *f'*, which bears against the inside of the inclined wall of the slot *d'*, causes the opposite end of the spring to throw out of its slot the spring-catch *g* of the carrier C at the instant that the spring-catch *g'* of the carrier C' takes hold of the shuttle on the right-hand side. The carriers now recede from each other, and the shuttle is drawn to the right by the carrier C', through the warp, to its limit of motion on this side. In this manner the shuttle is caught and driven, driven and caught, alternately on opposite sides.

I have inserted in the specification a brief mention of the mechanism which gives motion to the carriers and shuttle; but as it is my intention to make a new application to cover this arrangement, with improvements to the same, I reserve a claim to this for the said future application.

I claim—

1. The combination of a shuttle-body formed with a central opening for a bobbin and a longitudinal groove in one of its sides, and having a curved base at the bottom of said groove, with a spring adapted to move longitudinally to the right and left over the said curved base at the bottom of said groove, said spring having slots at its ends, and pins fixed in the shuttle-body across the ends of the said longitudinal groove passing through said slots, and serving to limit the longitudinal movement of said spring, and to cause the ends of the same to be retracted within the shuttle-body, substantially as described.

2. The combination, with the shuttle, formed as described, and provided with the spring *d* and means for limiting the longitudinal and lateral movement of said spring, of the reciprocating carriers C C', provided with springs *g g'*, all arranged substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of January, 1883.

FREDERICK K. WRIGHT.

Witnesses:

FREDERICK I. BOIES,  
S. J. BAIRD.