(No Model.)

J. W. BABCOCK.

POSITIVE SHUTTLE MOTION FOR LOOMS.

No. 447,038. Patented Feb. 24, 1891.

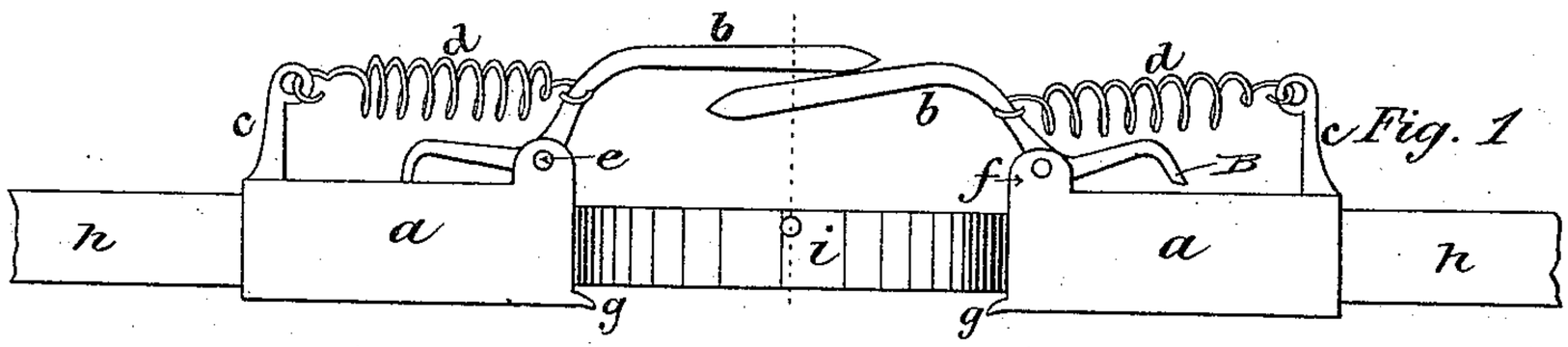

Fig. 1

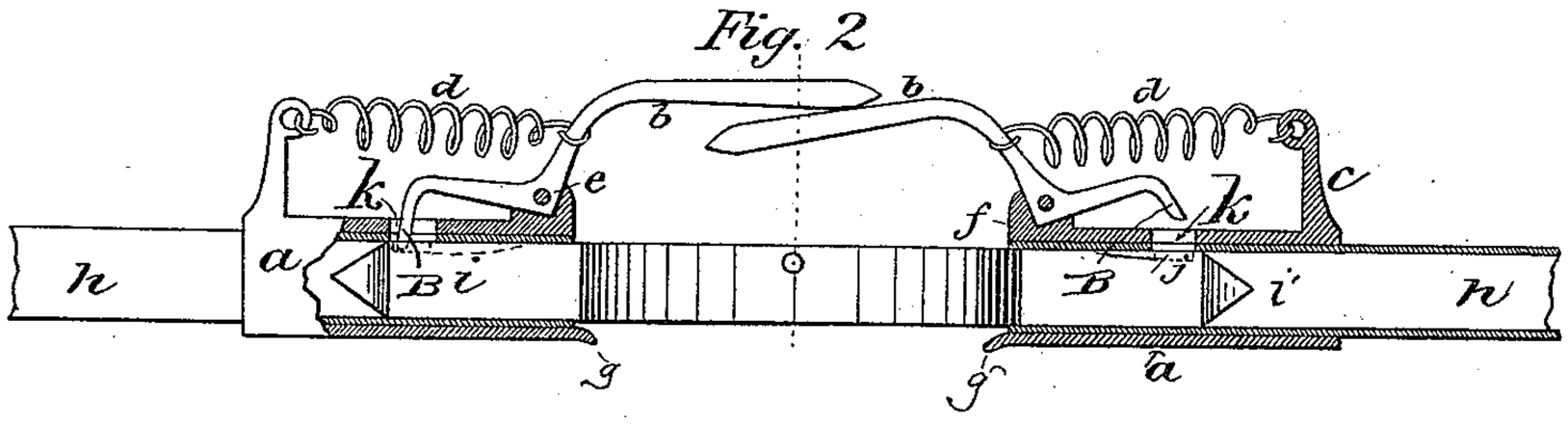

Fig. 2

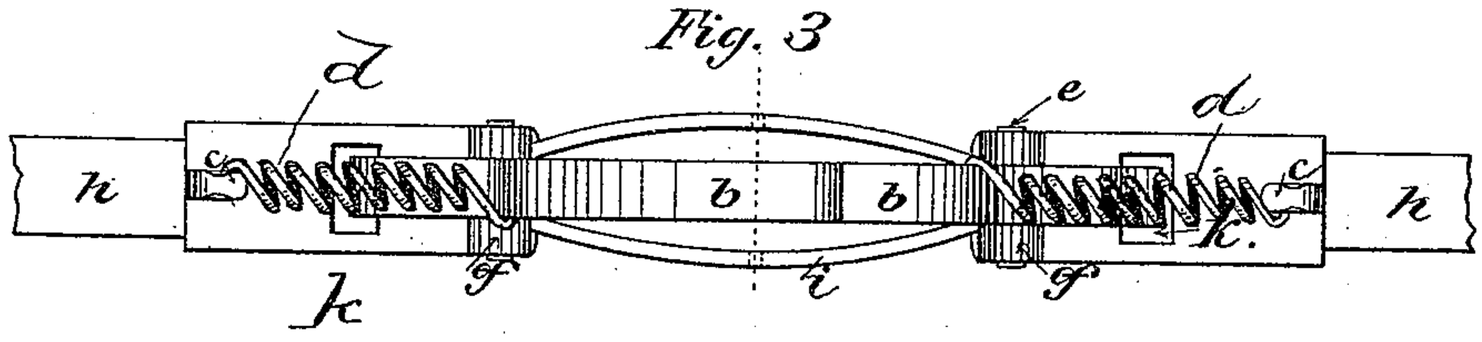

Fig. 3

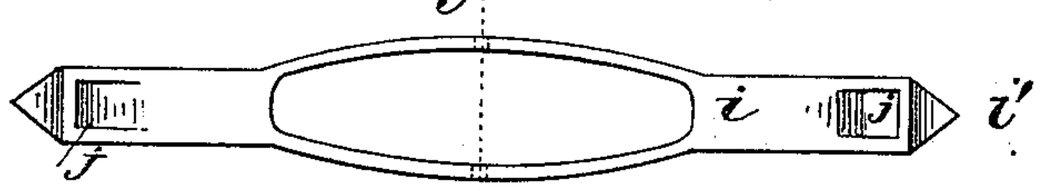

Fig. 4

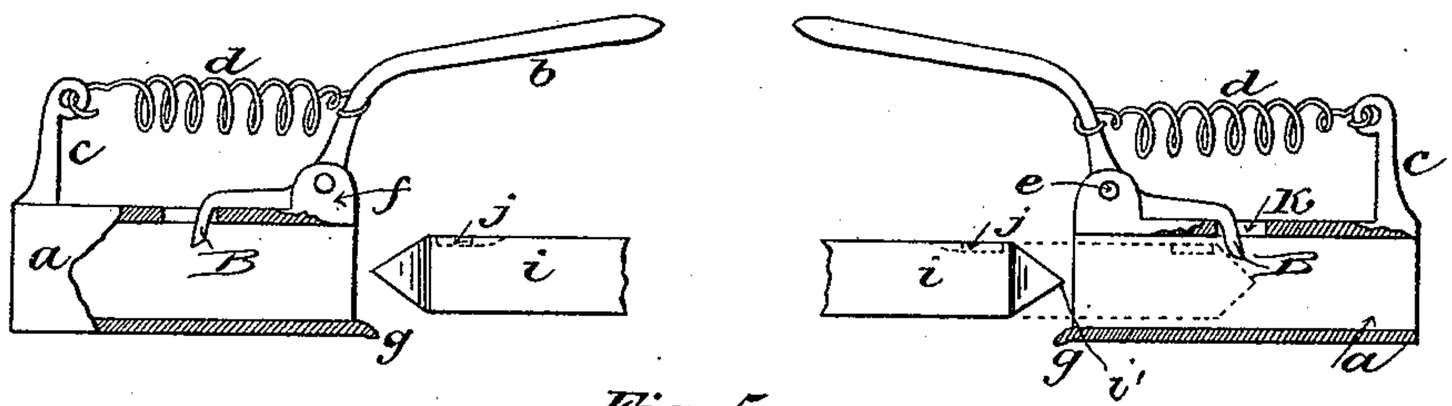

Fig. 5

Witnesses.

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POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 447,038, dated February 24, 1891.

Application filed October 11, 1889. Serial No. 326,745. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH W. BABCOCK, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Positive Shuttle-Motions for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of shuttle-motions for looms in which the shuttle is carried back and forth in a positive manner in contradistinction to being thrown, and in which the shuttle is adapted to hold a circular disk bobbin that carries the thread or wire, and is actuated by hollow shuttle-carriers, which are operated intermittently in opposite directions by any suitable positively-acting mechanism, and are provided with catches which operate automatically to engage either carrier with and to disengage it from the shuttle or shuttle-frame; and my invention consists in certain improvements in a shuttle-motion of this class which will be hereinafter fully described and claimed.

Referring to the accompanying drawings, Figure 1 is a view in side elevation illustrating my invention, and showing the shuttle as being transferred from one carrier to the other. Fig. 2 is a similar side elevation, partly in section. Fig. 3 is a top plan view. Fig. 4 is a plan view of the shuttle, and Fig. 5 is a detail view of the end casings of the shuttle-carriers and the spring-actuated hooks which engage the ends of the shuttle.

The same letters of reference indicate corresponding parts in all the figures.

Referring to the several parts by letter, *h h* indicate the hollow shuttle-carriers, with which the shuttle is made to alternately engage, and from which it is alternately and automatically disengaged in order to draw the shuttle from side to side of the shed of the loom, the shuttle-carriers being reciprocated by any suitable well-known mechanism designed for that purpose—such, for example, as that shown in Patent No. 404,987 or Patent No. 209,439. This reciprocating mechanism forms no part of my invention, and I will therefore not burden the drawings with illustrations of it.

Upon the inner end of each hollow shuttle-carrier is secured a metal casing *a* open at its ends. The lower outer end of each casing is formed with a downwardly-inclined guide-piece *g*, upon which the pointed end of the shuttle rides as it enters the hollow carrier *h*, thus serving to guide the end of the shuttle into the carrier, as will be readily seen.

Upon the top of the outer end of the casings are formed lugs *f*, between which are pivoted the hooks *b*. These new and improved hooks are made of the form shown, being centrally pivoted at the point *e*, and the inner end of each hook is bent down at nearly a right angle to form a locking-pawl B, which passes down through an opening *k* in the top of both the hollow casing and the shuttle-carrier. An upward extension *c* is formed at the rear end of each casing *a*, and a spiral spring *d* is secured at one end to this extension and at its other end to the hook *b* in front of the pivotal point *e* of the said hook.

The shuttle *i*, which carries the spool, is formed with the pointed ends *i'*, and is recessed at each end on its upper side to form the locking-shoulders *j* close to the pointed extremities of the shuttle, as shown.

In operation one end of the shuttle is first inserted in the inner end of one of the hollow carriers *h*, pressing up the pawl B against the tension of the spiral spring *d* until the end of this pawl passes over the shoulder *j*, when it falls under the pull of the spiral spring, and thus locks the shuttle in the carrier. As the inner ends of the carriers approach each other at the center of the shed, the outer end of the hook *b* on the empty carrier will pass over the outer end of the hook which is then holding the shuttle in the other carrier, and as the free end of the shuttle enters the end of the empty carrier it presses up the pawl B of the free hook, thus pressing down its outer end on top of the outer end of the hook which is holding the shuttle. The inner end of this latter hook is thus raised against the tension of its spring *d* until its pawl B is free from that shouldered end of the shuttle, thus freeing the shuttle from that carrier, while the pawl of the other hook engages with the shoul-

der *j* on the other end of the shuttle. In this manner every time the shuttle-carriers meet at the center of the shed the shuttle is automatically transferred from one carrier to the other, and is thus carried from side to side of the shed.

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

1. The combination of hollow shuttle-carriers having apertures *k* in their upper sides, the centrally-pivoted spring-actuated hooks having locking-pawls B formed at the extremities of their rear ends, and a shuttle recessed at the extremities of its free ends to form shoulders *j*, substantially as set forth.

2. The combination of the hollow shuttle-carriers having upon their inner ends the casings *a*, the hooks *b*, pivoted at the point *e* on the hollow casings and formed at their rear ends with the locking-pawls B, adapted to project down through openings *k* in the casings and carriers, the spiral springs *d*, and the shuttle recessed at the extremities of its free ends to form locking-shoulders *j*, substantially as set forth.

JOSIAH W. BABCOCK.

Witnesses:
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BENJ. F. LEVET.