

(No Model.)

H. M. DAY & C. H. BRISTOL.
POSITIVE SHUTTLE MOTION FOR LOOMS.

No. 309,207.

Patented Dec. 16, 1884.

Fig. 1.

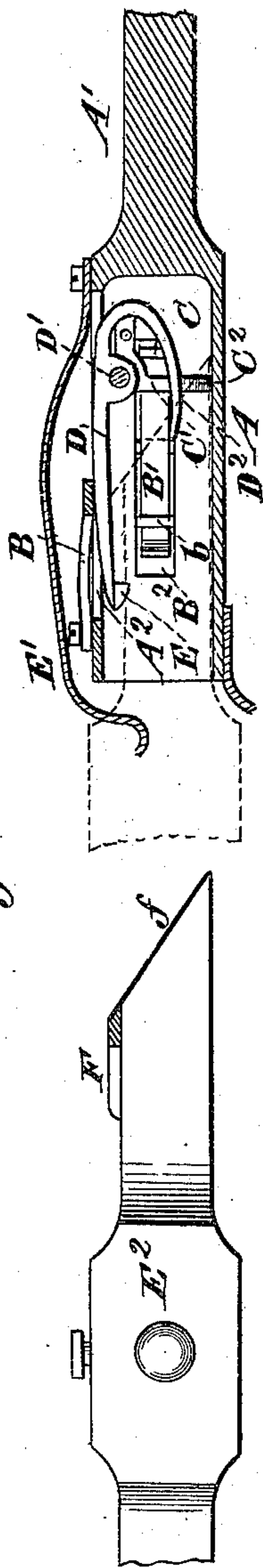


Fig. 2.

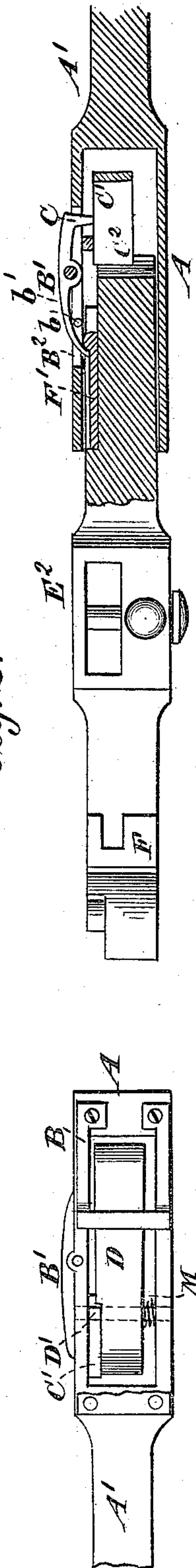
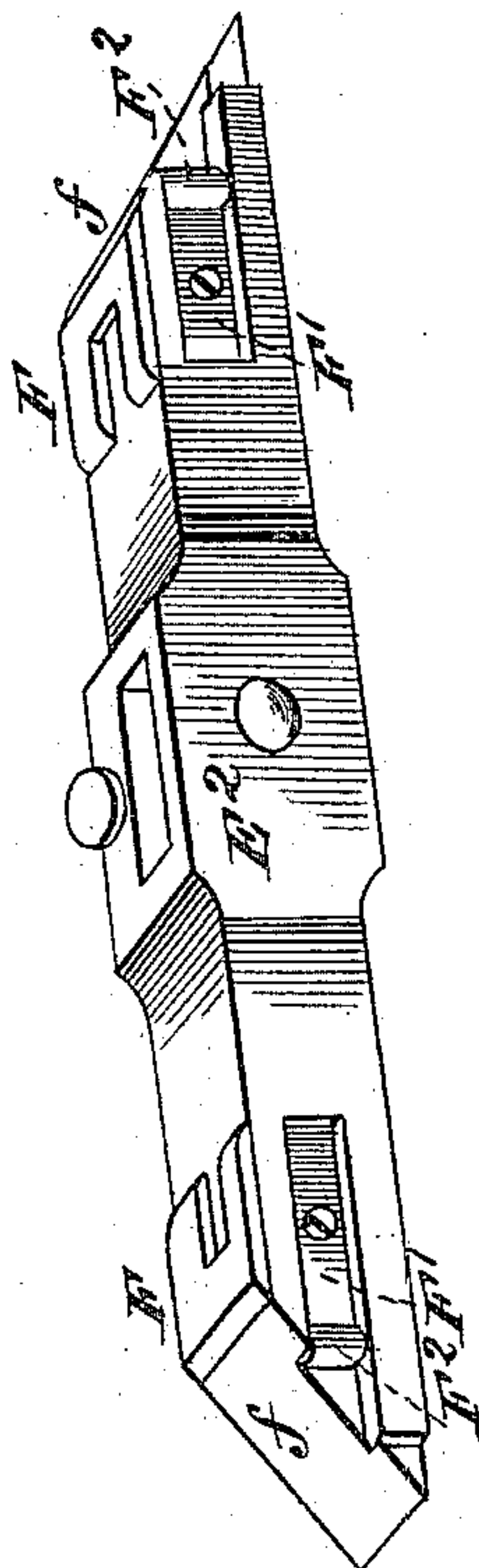


Fig. 4.



Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

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POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 309,207, dated December 16, 1884.

Application filed March 20, 1883. (No model.)

To all whom it may concern:

Be it known that we, HENRY M. DAY and CHARLES H. BRISTOL, citizens of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Positive Shuttle-Motions for Looms; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention comprises certain new and useful improvements in positive shuttle-motions for looms; and it has for its object to provide an inexpensive and simple means for automatically holding and releasing the shuttle in and from the respective carriers; and it consists in the mechanism and combinations of mechanism, which will be more fully hereinafter set forth, and specifically pointed out in the claims.

In the drawings, Figure 1 is a longitudinal vertical section of one of the shuttle-carriers, showing the shuttle in connection with the carrier in dotted lines, and in elevation as released from the carrier. Fig. 2 is a view, partly in section, showing the shuttle in connection with one carrier, the other carrier being in elevation. Fig. 3 is a perspective view of the shuttle, and Fig. 4 a perspective view of a detail.

Referring to the drawings, A designates each of two shuttle-carriers attached to arms A' A', as shown, and each consisting, essentially, of a rectangular body having a chamber open at one side, as seen at A². On the pin D' is pivoted in said open face A² a locking-lever of less width than the opening A² in which it operates, composed of a long arm, D, having a terminal locking-hook, E, which hook is adapted to engage one of the locking-plates, F, upon the shuttle E², and a curved arm, D², as shown. The arm D is held in position to lock the shuttle by the action of a yoke-spring, B, secured to the open face of the carrier, which spring allows the said arm to be elevated to release the shuttle, as will be explained.

E² designates the shuttle, having the locking-plates F and inclined ends *f*, and having, also, the side lugs, F², which are formed upon plates F'. When one end of the shuttle is forced into the chamber of either carrier, the locking-hook E passes over the locking-plate F, and is forced into the recess formed therein by the spring B, and the shuttle is thus locked to one arm. When the arms and carriers are moved inward and meet at the middle of the loom, the resistance which the shuttle meets with in its entrance into the opposite carrier causes the shuttle to be forced back into the first-named carrier, until its incline *f*, acting against and under the curved arm D², serves to turn the lever D D² and unlock the hook E from the plate F. When the parts are thus conditioned, a spring, M, surrounding the pin D', on which the locking-lever is pivoted, throws the locking-lever D D² over until the arm D² rests upon a lug, C², formed upon an angle-piece, C', secured against the inner surface of the carrier-chamber. As thus conditioned, the locking-lever is held out of engagement with the shuttle, which is free to pass from the first-named carrier and move with the opposite carrier, to which it has become locked by the entrance of its end therein and by the engagement of the locking-plate F on that end of the shuttle with the hook E of said opposite carrier. When the shuttle is thus passing out of the first carrier, the locking-lever D D² is automatically set for a subsequent locking operation upon the return of the shuttle. This is accomplished by a tilting lever, B', centrally pivoted on a pin in a slot, B², formed in one side of the carrier. This lever B' has a curved arm, *b*', upon one end, which, when it rides over the lug F² of the shuttle, throws the lug C upon the opposite end of the lever B' against the arm D², so as to dislodge it from the lug C² on the angle-plate C', when the spring B throws the locking-lever down into a normal engaging position. The inward throw of the front end of the tilting lever B' is limited by a pin, *b*, arranged transversely to the slot B². This operation is similar with each carrier, and the shuttle is engaged with the carriers alternately.

E' designates a spring secured to each of the carriers by means of screws, and which

serves by its pressure against one end of the shuttle to assist in disengaging the opposite end of the shuttle from the carrier to which said end is engaged, and also acts to secure the said shuttle, while connected with a carrier, against accidental displacement during its passage through the strands of the material being woven.

The arms A' may be operated to give simultaneous strokes in opposite directions by a mechanism similar to that shown in Patent No. 299,610, June 3, 1884, or by other proper mechanical devices which will give a positive stroke to each arm in both directions. Such mechanism, forming no part of the claims in this invention, has not been illustrated or described.

What we claim as new is—

1. The shuttle-carrier formed with the slots, as described, and provided with the locking-lever and the disengaging-lever having one end curved and a projection on the other, the angle-plate having lug C², and spring M, the parts being relatively arranged and adapted to operate as specified.

2. The shuttle-carrier formed with the slots, as described, and provided with a locking-lever having a hook at one end and a curved arm at the other, the angle-plate for supporting the locking-lever when the shuttle is to be released, the spring M, the yoke-spring for keeping the locking-lever to its work, and the disengaging-lever having one end curved in-

wardly and a projection at the other, all constructed and adapted to operate as and for the purposes set forth.

3. The combination, with the shuttle having inclined ends, of the locking-lever having a curved arm, a spring for forcing said locking-lever in a sidewise direction when the locking devices are disengaged, and a lug, C², for holding said lever in such position until the shuttle is removed, as set forth.

4. The combination, with the shuttle-carriers, each provided with a disengaging-lever, a locking-lever, an angle-plate having a lug, the spring M, and spring E, of the shuttle provided with locking-plates and inclined ends, the locking-levers being adapted to release the shuttle, when forced out of engagement with the locking-plates, by the inclines on the shuttle, substantially as set forth.

5. The combination, with the shuttle having locking-plates F, lugs F², and inclines f, of the shuttle-carriers, each having the lever D D², the lug C², the spring M, the spring E', and the disengaging-lever B', as and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY M. DAY,
CHARLES H. BRISTOL.

Witnesses:

JOHN W. SUGGETT,
M. STANLEY BIEORE.