

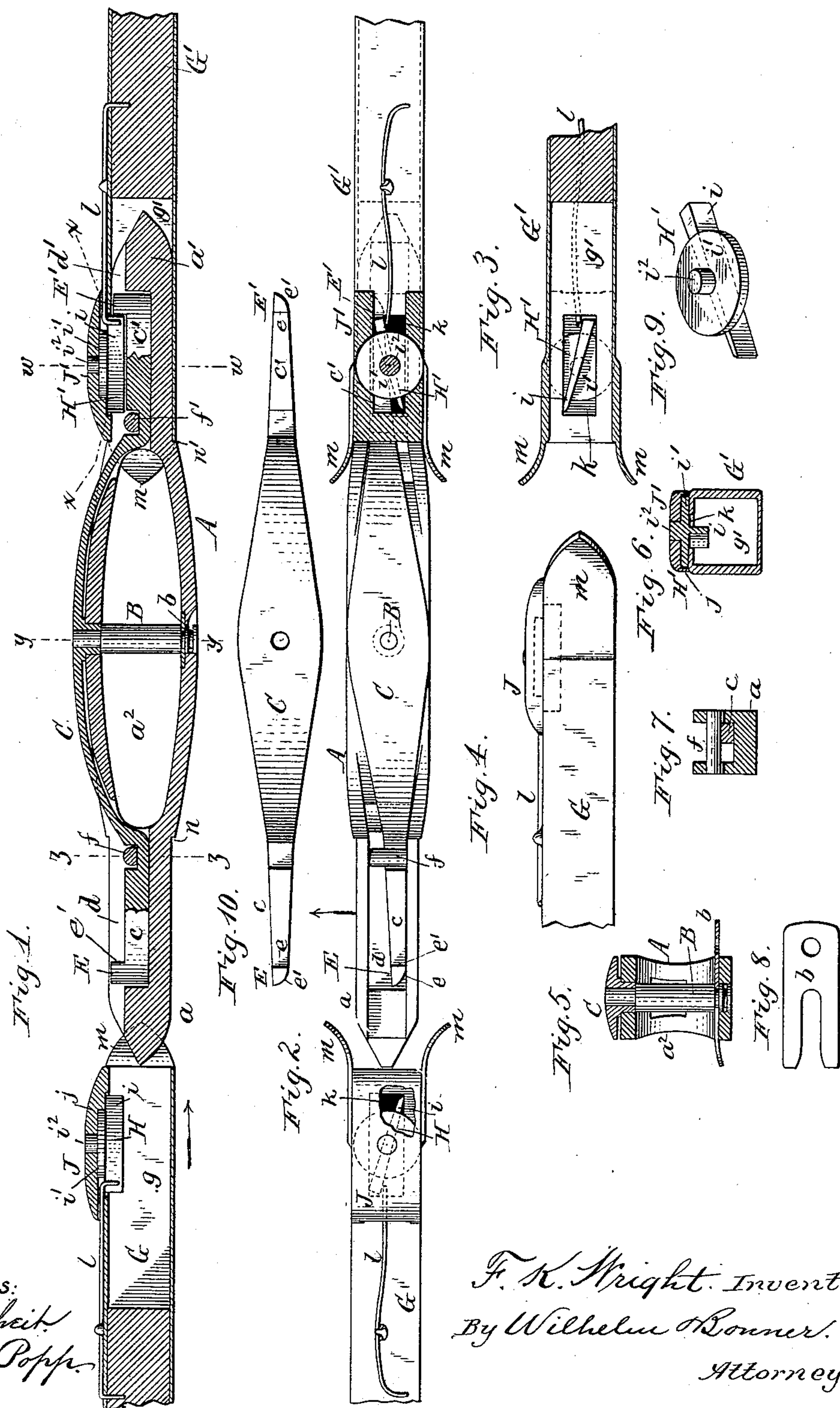
(No Model.)

F. K. WRIGHT.

POSITIVE SHUTTLE MOTION FOR LOOMS.

No. 373,423.

Patented Nov. 15, 1887.



Witnesses:

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POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 373,423, dated November 15, 1887.

Application filed November 11, 1886. Serial No. 218,624. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK K. WRIGHT, of the city of Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Positive Shuttle-Motions for Looms, of which the following is a specification.

This invention relates to that class of shuttle-motions in which the shuttle is operated positively by two carriers arranged on opposite sides of the loom and receiving and delivering the shuttle from one to the other within the warp-shed by means of an automatic locking mechanism.

The object of my invention is the production of a simple and efficient locking mechanism, whereby the shuttle is automatically attached to and detached from the carriers.

My invention consists of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved shuttle and the inner ends of the carriers. Fig. 2 is a top plan view of the same parts, one of the carriers being shown in a horizontal section taken in line *x x*, Fig. 1. Fig. 3 is a horizontal section through the socket of one of the carriers. Fig. 4 is a side elevation of the end of one of the carriers. Figs. 5, 6, and 7 are cross-sections in lines *y y*, *w w*, and *z z*, Fig. 1, respectively. Fig. 8 is a plan view of the locking-bar of the bobbin-arbor. Fig. 9 is a perspective view of one of the catches which are attached to the carriers. Fig. 10 is a detached plan view of the locking-lever.

Like letters of reference refer to like parts in the several figures.

A represents the shuttle-body provided with pointed arms *a a'*, having a central cavity, *a²*, for the reception of the weft-bobbin.

B is the arbor for the bobbin, secured to the shuttle body A by a bifurcated locking-bar, *b*, in the usual manner.

C represents a locking-lever pivoted to the shuttle-body and having its arms *c c'* arranged in grooves *d d'*, formed in the upper sides of the arms *a a'* of the shuttle-body. The lever C is pivoted upon the upper end of the arbor B, and is curved to lie closely against the upper

side of the shuttle-body, as represented in Fig. 1.

E E' represent locking-heads, formed on the ends of the lever-arms *c c'* and projecting upwardly therefrom. Each of the heads E E' is provided with an oblique face, *e*, and an abrupt shoulder *e'*.

f f' represent pins extending transversely through the grooves *d d'* in the shuttle-arms *a a'*, and arranged closely against the upper sides of the lever-arms *c c'*, so as to confine the latter in the grooves and prevent the lever from becoming detached from the shuttle.

G G' represent the shuttle-carriers arranged horizontally on opposite sides of the loom and moving simultaneously inwardly and outwardly in a well-known manner. The shuttle-carriers may be operated by any suitable mechanism—for instance, that described and shown in Letters Patent No. 299,610, granted to me June 3, 1884. The carriers are provided in their inner ends with sockets *g g'*, respectively, for the reception of the shuttle-arms *a a'*.

H H' represent movable catches arranged obliquely in the upper portions of the sockets *g g'* at the proper height to engage against the locking-heads E E' of the lever C. Each of these catches consists of a wedge-shaped bar, *i*, a disk, *i'*, and a pivot, *i²*. The bars *i* are arranged obliquely and with their narrow ends inwardly or toward the shuttle. The disks *i'* are arranged on the upper sides of the bars *i*, and are seated in bearing-pieces J J', secured to the upper sides of the carriers. Each bearing-piece is provided on its under side with a recess, *j*, in which the disk *i'* is seated.

The carriers G G' are square in cross-section, and are provided in their upper sides with elongated openings *k*, in which the bars *i* play, as represented in Figs. 2, 3, and 6. These openings are wide enough to permit of the requisite movement of the bars *i*, but are narrower than the disks *i'*, so that by inserting the bar *i* in the opening *k*, with the disk *i'* resting on the top of the carrier over the opening *k*, then placing the bearing-piece J on the pivot *i²*, and securing the bearing-piece to the carrier-arm by riveting or otherwise, the catch is attached to the carrier-arm in a simple and inexpensive manner. Each of the catches H H'

is held in its normal position by a spring, *l*, secured with its rear portion to the carrier and bearing with its front end against the catch-bar *i*, in such manner as to hold the bars obliquely and parallel, or nearly so, with the oblique faces *e* of the locking-heads *E E'*.

m represents outwardly curved or diverging wings secured to the inner ends of the carriers for guiding the shuttle-arms into the sockets of the same.

In the position of the parts represented in Figs. 1 and 2 the shuttle is attached to the carrier *G'* and detached from the carrier *G*. The bar *i* of the catch *H'*, which is attached to the carrier *G'*, is engaged behind the locking-head *E'* of the lever *C*, and the inner end of the carrier rests against the shoulder *n'* at the junction of the shuttle-arm *a'* with the body of the shuttle. A similar shoulder, *n*, is formed at the junction of the arm *a* with the shuttle-body.

When the carrier *G* moves toward the shuttle in the direction of the arrow in Fig. 1, the shuttle-arm *a* enters the socket *g* of the carrier *G*, and the oblique bar *i* of the catch *H* strikes against the oblique face *e* of the locking-head *E*. The front end of the bar *i* is held against outward movement by resting against the adjacent side of the slot *k*, and the bar *i* therefore moves the head *E* laterally in the direction of the arrow in Fig. 2, swinging the lever *C* on its pivot. When the pivot of the catch *H* in its movement toward the shuttle has passed the head *E*, the bar *i* yields laterally by turning on its pivot and deflecting the spring *l* until the rear end of the bar *i* has cleared the abrupt shoulder *e'* of the head *E*, when the spring returns the catch *H* to its normal position. The rear end of the bar *i* now rests against the shoulder *e'* of the head *E*, and the inner end of the carrier *G* rests against the shoulder *n* of the shuttle, thereby attaching the latter firmly to the carrier *G*, and compelling it to move with the carrier. The above-described lateral movement of the lever *C* swings the locking-head *E'* at the other end of the shuttle away from the bar *i* of the catch

H', and permits this bar *i* to move past the head *E'* as the carrier *G'* moves away from the shuttle. When the pivot of the catch *H'* has passed the head *E'* during the outward movement of the carrier *G'*, the bar *i* of the catch *H'* yields by turning on its pivot and deflecting the spring *l* until the bar *i* clears the head *E'*, when the catch *H'* is returned to its normal position by the spring *l*. When the carrier *G'* moves toward the shuttle, it is interlocked with the shuttle and the carrier *G* is detached therefrom in the same manner.

My improved shuttle-motion is very simple in construction and reliable in its operation.

I claim as my invention—

1. The combination, with the shuttle provided with a laterally-movable locking-lever, of carriers provided with laterally-movable catches adapted to engage with said locking-lever, and stops and springs arranged on said carriers, whereby the catches are held obliquely to shift the locking-lever by contact with the advancing end thereof, and which permit the catches to yield and clear the retreating end of the locking-lever, substantially as set forth.

2. The combination, with the shuttle provided with a locking-lever, *C*, of the slotted carriers *G G'*, provided with catches *H H'*, each composed of a bar, *i*, disk *i'*, and pivot *i''*, and bearing-pieces *J J'*, and springs *l*, applied to said catches, substantially as set forth.

3. The combination, with the shuttle provided with an obliquely-faced locking-lever, *C*, of carriers provided with pivoted catches which are held obliquely and whereby the locking-lever is shifted, and springs which permit the catches to yield after the locking-lever has been shifted, substantially as set forth.

Witness my hand this 30th day of October, 1886.

FREDERICK K. WRIGHT.

Witnesses:

P. L. SALMON,
W. P. MCKILLIP.