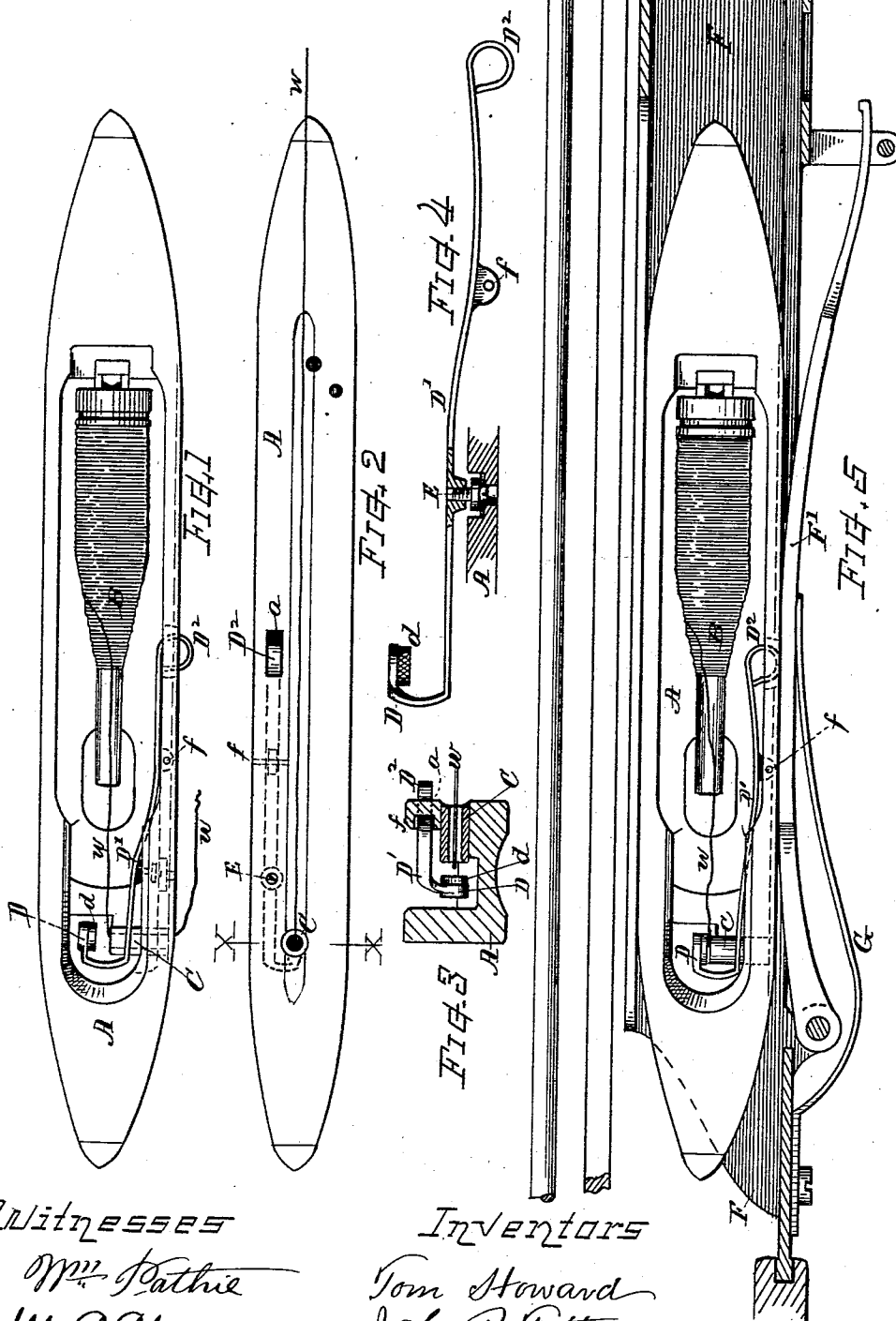


(No Model.)

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E. HOWARD, Administratrix of T. HOWARD, Deceased.
TENSION DEVICE FOR LOOM SHUTTLES.

No. 560,181.

Patented May 12, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

TOM HOWARD AND JOHN R. FITTON, OF WORCESTER, MASSACHUSETTS;
ELIZABETH HOWARD ADMINISTRATRIX OF SAID TOM HOWARD, DE-
CEASED.

TENSION DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 560,181, dated May 12, 1896.

Application filed October 18, 1892. Serial No. 449,212. (No model.)

To all whom it may concern:

Be it known that we, TOM HOWARD and JOHN R. FITTON, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Tension Device for Loom-Shuttles, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of our present invention is to provide means applicable in drop-box weaving for automatically stopping the feed of the weft or filling thread in a weaving-shuttle when the shuttle passes into the drop-box and for holding the thread taut or without undue slackness while said shuttle is within the box, thereby avoiding liability of the idle weft-thread from one shuttle being partially drawn into the warp or fabric by a shuttle thrown from an adjacent box when the boxes are changed.

Another object is to provide a shuttle with improved means adapted to be automatically operated by contact with the common shuttle-binder of the loom as the shuttle enters the drop-box for retarding or stopping the feed or for increasing the tension on the weft-thread running from the shuttle, thereby to tighten or hold the weft-thread straight until beaten up into the web, and to prevent the fabric being woven loose or heavier at the selvage or adjacent thereto than in its central portion.

We attain these objects by mechanism the nature of which is illustrated in the drawings, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a top view of a loom-shuttle illustrating the nature of our invention. Fig. 2 is a side view of the shuttle. Fig. 3 is a transverse section of the same at line *x x*, Fig. 2. Fig. 4 is a detail view showing the push-lever separate from the shuttle, except a section illustrating the adjusting device; and Fig. 5 is a plan view of the shuttle as entered in the drop-box, and showing the manner in which the weft stop device is actuated by the shuttle-binder of the drop-box.

Referring to parts, A denotes the body of a loom-shuttle, which may be of any well-known kind for carrying a cop or bobbin B, from which a weft thread or yarn *w*, of cotton, wool, silk, or other material is fed as said shuttle is thrown or passed through the shed of the warp in any well-known manner.

C indicates the guiding-eye through which the weft-thread *w* is delivered.

D indicates a movable presser or stop device arranged to be forced down upon the thread *w*, where it passes into the eye C, for retarding or stopping the run of the thread from the shuttle. Said presser is preferably an arm or lever D', pivoted to the side of the body at *f* and having a portion D², that projects through an opening *a* in the side of the shuttle-body, standing out therefrom in such manner that, when the shuttle is in use, it will engage with the inner surface of the binder which is commonly employed in the shuttle-boxes of looms and be thereby pressed inward flush with the side of the shuttle, swinging the lever D' and causing the pad to bear upon the thread at the shuttle-eye, as indicated in Fig. 5. The arm of the lever is best made of an elastic bar, so as to yield or spring somewhat under excess of pressure. This presser-lever can be adapted to the various forms and sizes of shuttles employed for weaving different classes of fabrics and materials—as silk, wool, cotton, or other fiber. The bearing-head of the presser is best provided with a facing *d*, of leather, rubber, felt, or such material as will give the desired action on any particular class of weft-thread or filling in any instance employed. An adjusting-screw E, arranged in the presser-lever and having a head that strikes against the body of the shuttle, serves to arrest the action of the presser and regulate the approach of the pad upon the thread to give greater or less force of pressure thereon, any excess of movement of the operating-arm being accommodated by the yielding or spring of said arm.

F indicates the shuttle-box or one of a series of drop-boxes of the well-known kind employed in ordinary fancy-loom, F' is the shuttle-binder thereof, and G the binder-spring, all of the usual construction and operation,

the shuttles being received into and delivered therefrom and said boxes shifted in well-known manner.

In the operation, as the shuttle passes into the box F the projecting part D² of the presser-lever by striking the binder F' is automatically forced inward, causing the pad *d* to be pressed down upon the thread *w*, which is embraced between the pad and the end of the guide C, thereby retarding or stopping the delivery of the weft-thread as the shuttle approaches or arrives at its destination, also holding the thread from running from the shuttle or increasing its slackness while the shuttle remains in the shuttle-box, but instantly and automatically relieving the stop upon the weft-thread as the shuttle is delivered from the box and the end D² released from contact with the face of the binder or engaging part.

By combining the stop or presser device with the shuttle in a manner shown and described and adapting it to be automatically brought into action by the binder with which it makes contact as the shuttle comes to the end of its throw we attain the following benefits, viz: The weft-thread stop is rendered simple, efficient, and comparatively inexpensive, and conveniently practical for service in fancy weaving where changeable shuttle-boxes are required, the improvement can be incorporated in shuttles of the ordinarily-employed types, and applied to use in the common drop-box loom without necessitating any change in or addition to the drop-box structure. The weft-thread while the shuttle is retained in the box is held from running off, thus preventing any liability, when the boxes are changed, of the shuttle thrown from an adjacent box drawing the idle thread from the standing shuttle into the edge of the woven fabric, as occurs in some classes of weaving.

We claim as our invention and desire to secure by Letters Patent—

1. In a shuttle for weaving fabrics, the combination with the shuttle-body provided with the thread-guiding eye, of the presser-lever pivoted in the side of the shuttle-body and having at one end a pad that acts in conjunction with said guiding-eye for stopping or retarding the delivery of thread there-through, and its other end turned outward and externally projecting at central position through the front side of the shuttle-body, and adapted for engagement in combination with the inner face of the shuttle-binders of the several drop-boxes, substantially as and for the purpose set forth.

2. The combination with a weaving-shuttle having a thread-guiding eye, of a yielding lever disposed longitudinally at the side of the bobbin-recess, pivotally connected with the shuttle-body, and having at one end a pad that acts against said guiding-eye for stopping or retarding the feed of the weft-thread, the other end of said lever extending through the front of the shuttle-body and externally protruding therefrom, as and for the purpose set forth.

3. In combination, a drop shuttle-box provided with the common spring-pressed shuttle-binder hinged to the front of said box; and a shuttle having a guide through which the thread passes as specified, and provided with a weft-thread stop mounted therein, consisting of a lever carrying a pad that pinches the thread against the guide-surface and having a protuberant end that makes contact with the said shuttle-binder in the manner described and for the purpose set forth.

Witness our hands this 17th day of October, A. D. 1892.

TOM HOWARD.
JOHN R. FITTON.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.