L. DUMAS.

SHUTTLES FOR LOOMS.

No. 190,566. Patented May 8, 1877.

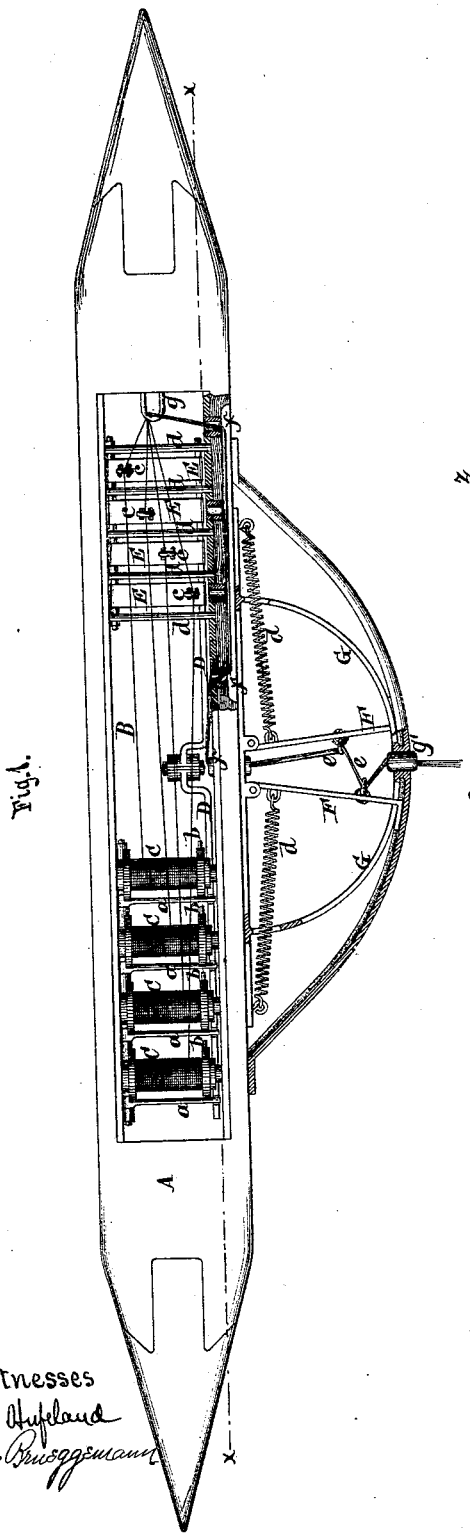

Fig. 1.

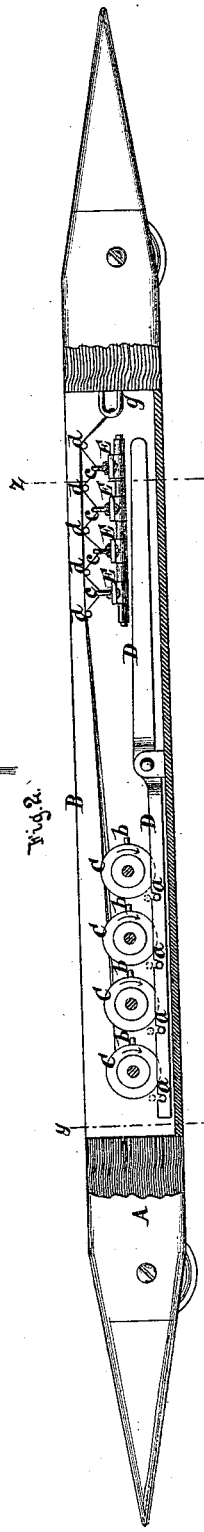

Fig. 2.

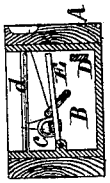

Fig. 4.

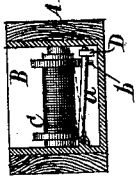

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

LOUIS DUMAS, OF PATERSON, NEW JERSEY.

IMPROVEMENT IN SHUTTLES FOR LOOMS.

Specification forming part of Letters Patent No. **190,566**, dated May 8, 1877; application filed March 14, 1877.

To all whom it may concern:

Be it known that I, LOUIS DUMAS, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Shuttles for Looms, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a plan or top view of a shuttle containing my improvement. Fig. 2 is a longitudinal section thereof in the plane of the line *x x*, Fig. 1. Fig. 3 is a cross-section of the same in the plane of the line *y y*, Fig. 2. Fig. 4 is a like section thereof in the plane of the line *z z*, Fig. 2.

Similar letters indicate corresponding parts.

My improvement is especially adapted to that class of shuttles containing two or more bobbins; and it consists, primarily, in combining, with a shuttle of said class, suitable mechanism to form a brake, which is adapted to be operated by the action of the filling-threads, for arresting the motion of all the several bobbins when either of the said threads break or wind off, whereby I prevent the discharge of the remaining threads, and obviate the occurence of any inequality in the woven fabric.

It consists also in the mechanism used for effecting the said result—namely, a breaking-lever, which is weighted at one end, and, moreover, so constructed and arranged relatively to the bobbins of the shuttle that, when said lever is tilted so as to elevate its said weighted end, it engages with the bobbins and arrests their motion, their being combined with said lever swinging arms or weights, which are provided with loops, through which the threads of the bobbins are respectively caused to pass, in such a manner that, when the threads are in a taut condition, the said arms or weights depend therefrom, and are thereby held clear of the breaking-lever, while, if either of the threads slackens from any cause, the arm or weight, which it supports, falls and actuates the breaking-lever, which thus automatically arrests the motion of the bobbins.

In the drawing, the letter A designates the shell of my shuttle, which is provided with the usual recess B, for receiving a series of bobbins.

It may be here remarked that the object of using more than one bobbin, so as to discharge several threads together from the shuttle, is to dispense with the operation of doubling the threads.

In shuttles of the usual form containing two or more bobbins no provision is made for arresting the motion of the bobbins when one of the threads break or wind off; and, hence, unless great care and watchfulness are exercised by the weaver, and the defective thread is properly arranged or replaced, inequalities occur in the woven fabric. This disadvantage I have overcome by combining, with the bobbins C, a brake, which is operated by the action of the filling-threads, and which arrests the motion of the several bobbins when either of the threads break or wind off, thereby causing all the threads to become broken, and by this means preventing any further and defective weaving. The best form of brake which I have hitherto devised for effecting the said result consists of a lever, D, which is pivoted in the recess B, and extends lengthwise thereof, so that one end of said lever is brought in proximity to the bobbins C. Said end of the lever D which is in proximity to the bobbins C, as just stated, is weighted, so that it has a tendency to occupy a lower position, hinged bars *a*, which are arranged to bear on the lever, being, in the present example, used for keeping the said end down. The bobbins C are provided with radial pins *b*, and when the lever D is tilted, so as to raise the said weighted end, and with it the bars *a*, the radial pins *b* are caused to strike against the said bars *a*, and by this means the bobbins C are prevented from turning. In proximity to the end opposite to the weighted end of the lever D are situated hinged arms or weights E, which extend crosswise of said lever, and above the same, while they are each provided with a loop or eye, *c*. The number of the hinged arms or weights E correspond to the number of bobbins used in the shuttle, and through each of the loops *c* the thread of one of said bobbins is made to pass, the threads being, moreover, made to pass over cross-

pieces *d* both before and after their passage through the loops *c*. When the said threads are in a taut condition the hinged arms or weights E are suspended therefrom, and are thus held in an elevated position; but if one of the threads breaks, and thus slackens, or if it "winds off," the arm E, which it supports, is allowed to fall upon the lever D, and thereby the latter is tilted, (each of the arms E being made of such weight that it is capable of displacing the lever,) while the bobbins C are impeded in their motion.

In connection with my shuttle I make use of a tension device composed of two hinged arms, F F, projecting from the front of the shuttle, and which are subjected to the action of springs *d d*, while they are arranged in segmental guides G G. The spring-arms F F are each provided with a loop, *e*.

The threads of the different bobbins C after being passed through the loops of the arms E, as before stated, are made to pass through a loop, *g*, and through eyes *f* formed in the front part of the shuttle; thence through the loops *e e* of the spring-arms F F, and through an eye, *g'*, formed between the segmental guides G G, and by the action of the spring-arms F F a very uniform tension of the threads is obtained.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the body of a shuttle, having two or more bobbins, of a brake adapted to be operated by the action of the filling-threads, for arresting the motion of the several bobbins when one of the said threads breaks or winds off, substantially as and for the purpose described.

2. The combination, with the body of a shuttle having two or more bobbins, of the breaking-lever D, weighted at one end, and the swinging arms E, having eyes through which the threads of the different bobbins pass, the whole being adapted to operate substantially as described, and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 12th day of March, 1877.

LOUIS DUMAS. [L. S.]

Witnesses:

E. F. KASTENHUBER,

CHAS. WAHLERS.