(No Model.)

J. ALLEN.

LOOM SHUTTLE.

No. 558,753. Patented Apr. 21, 1896.

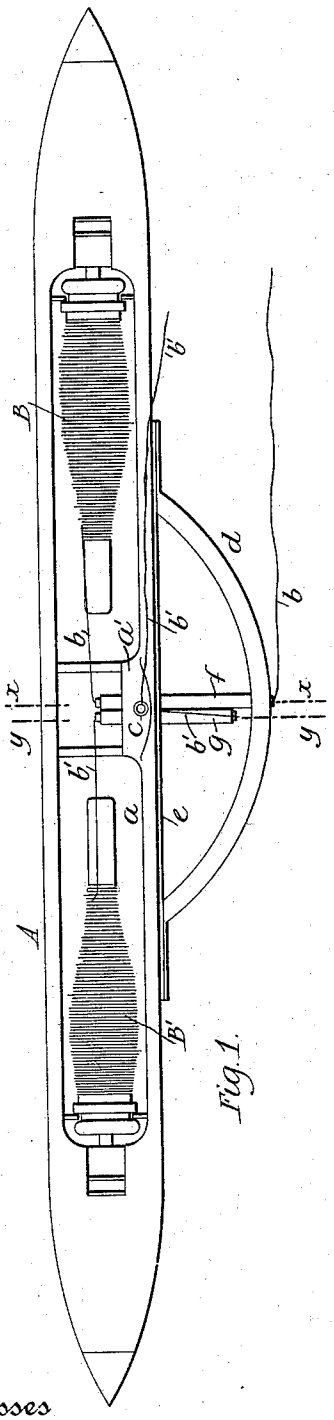

Fig. 1.

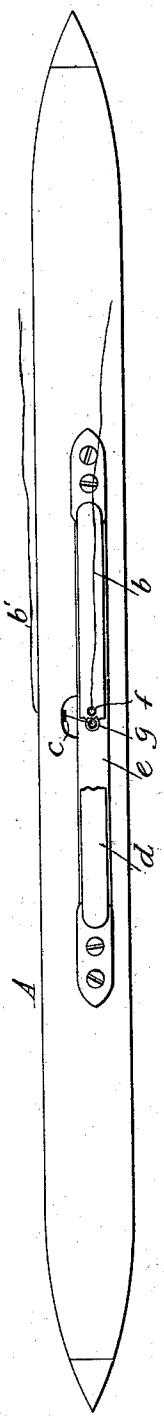

Fig. 2.

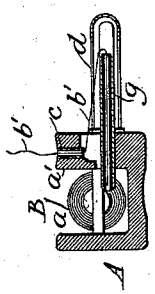

Fig. 4.

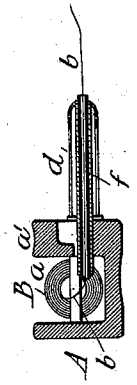

Fig. 3.

Witnesses
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By

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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 558,753, dated April 21, 1896.

Application filed July 22, 1895. Serial No. 556,817. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALLEN, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Loom-Shuttles; and I 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 of reference marked thereon, which form a part of this specification.

This invention relates to loom-shuttles, and is directed more particularly to improvements in that class of shuttles which are employed in the operation of silk-weaving.

The invention has for its object the production of a shuttle having means, in the nature of two cops or bobbins, for delivering simultaneously two threads, and also having means of a new and novel nature for separating and insuring the separation to the point of weaving of the two threads delivered from the cops or bobbins, with the result to entirely preclude any contact thereof until the proper time, thereby preventing any twisting and tangling of the threads and insuring the proper operation and a perfect weave.

In the class of weaving referred to—namely, that of silk—it has been the practice heretofore to employ a separate shuttle for each thread, and, while the use of the extra shuttle is in itself costly, the greatest expense attending the previous operations was in the necessary employment of a loom of the box type. In practicing my invention, however, I employ what is termed a "plain" loom, the cost of which is but one-third of the cost of the box-loom referred to, and this advantage alone, irrespective of the increased capacity and improved product resulting from its use, places my invention in advancement of the prior art.

The nature of my invention will fully appear by reference to the following description when taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of my improved shuttle. Fig. 2 is a side elevation partly broken away. Fig. 3 is a sectional view on line *x x* of Fig. 1, and Fig. 4 is a sectional view on line *y y* of same figure.

Referring to the said drawings by letter, A denotes the shuttle-body, provided with the usual recess *a*, but which is made of sufficient length to accommodate two bobbins B B′, which are mounted on tongues pivotally arranged. The said bobbins lie in position end to end and deliver the threads centrally of the shuttle, at which point the body is provided with a thread-delivery eye *c*, preferably vertically arranged in an enlargement *a′* of one of the side walls of the body, said eye being located centrally between the ends of the shuttles, but to one side of the line thereof. Secured to one side of the shuttle is a semicircular guard *d*, and a strip *e* is interposed between the side of the body and the guard to serve as a means for holding rigidly two thread-tubes *f g*. Said tubes are lined with porcelain or other material, and at their inner ends extend to a point in line with the bobbins. The tube *f* extends to and through the guard; but the tube *g* terminates short thereof, and, if desired, said tubes are firmly secured together by soldering. In threading the shuttle the thread *b* from the bobbin B is passed directly through the tube *f*, being thereby delivered at a point some distance from the body of the shuttle. The other thread, *b′*, of the bobbin B′ is first passed through the tube *g*, and from thence to and through the eye *c*, the point of its delivery being thereby within the side of the shuttle adjacent to the point of delivery of the thread *b* and same distance from the latter. By this means the threads are not only fed or delivered in a separated condition, but the separation is maintained by reason of the initial distance between the points of delivery until the weaving actually takes place. There is no contact until the threads are in the cloth, and hence there is no twisting nor tangling, as would be the case were the threads delivered from the same eye. This result in silk-weaving was heretofore attainable only by the employment of a separate shuttle for each thread, which also necessitated a box-loom. In the present case the much cheaper plain loom is employed, and the cost of weaving is thereby greatly reduced.

My improved shuttle, while capable of application to weaving generally, is especially adapted to the weaving of silk fabrics, and generally to that class of silk fabrics which may be designated as "changeable," "iridescent," or "chameleon," such fabrics being generally composed of three threads of differing colors, one of said threads constituting the warp and the other two the filling threads. To produce the optical effect peculiar to this kind of silk fabrics, the filling-threads are necessarily woven in parallel relation and have a regular and uniform alternation of color. This effect has been previously accomplished by the use of two separate shuttles in a loom of the box type, as before stated, the employment of said separate shuttles being necessary to avoid the twisting, mixing, or tangling of the two threads, the occurrence of which, even in a slight degree, is fatal to the peculiar effect described. By my invention the extra shuttle is dispensed with, and consequently I am enabled to employ in the operation a loom of the plain type. My improved shuttle having two bobbins which feed simultaneously two filler-threads at the point of delivery from the shuttle insures the same result as that attained by the employment of the two separate shuttles in the box-loom.

Aside from the great economy incidental to the use of the plain loom as compared with the use of the box-loom, the extra shuttle is dispensed with and the output of the loom is greatly increased. Moreover, I am enabled to attain by the performance of my invention an improved product, owing to the maintenance of parallelism of the filling-threads throughout the body of the fabric and the consequent regular and uniform alternation of color. In addition to these advantages the plain type of loom employed by me is more readily controlled and can be operated at less expense than a loom of the box type.

I claim as my invention—

1. A shuttle having a plurality of bobbins and a guard connected to and extending beyond the side thereof, a guide in the body of the shuttle for delivering a thread at said body, and a guide extending from the body to the guard for delivering a thread beyond the latter to provide the maximum separation of said threads.

2. A shuttle having two bobbins arranged end to end, and having in one of its sides a thread-delivery eye and an opening below said eye, a curved guard connected to and extending beyond said side, a thread-tube passed through the said side and projecting into the interior of the shuttle and extending through said guard to provide a thread-delivery point at the maximum distance from the shuttle, and a second thread-tube opening into the interior of the shuttle and extending beyond the outside thereof but within the guard, and forming with the opening and eye a second thread-passage.

3. In a shuttle, the combination of two bobbins arranged end to end, the side wall provided with an enlargement and a transverse opening therethrough, a thread-delivery eye vertically arranged in said enlargement, the guard secured to and extending centrally beyond said side wall and a plate interposed between said guard and wall, and two thread-tubes secured in said plate, both of which extend within the interior of the shuttle, one terminating within the guard and the other terminating without the guard, whereby one thread is delivered at the said wall and the other at a point beyond the guard, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN ALLEN.

Witnesses:
W. W. DUDLEY,
W. T. NORTON.