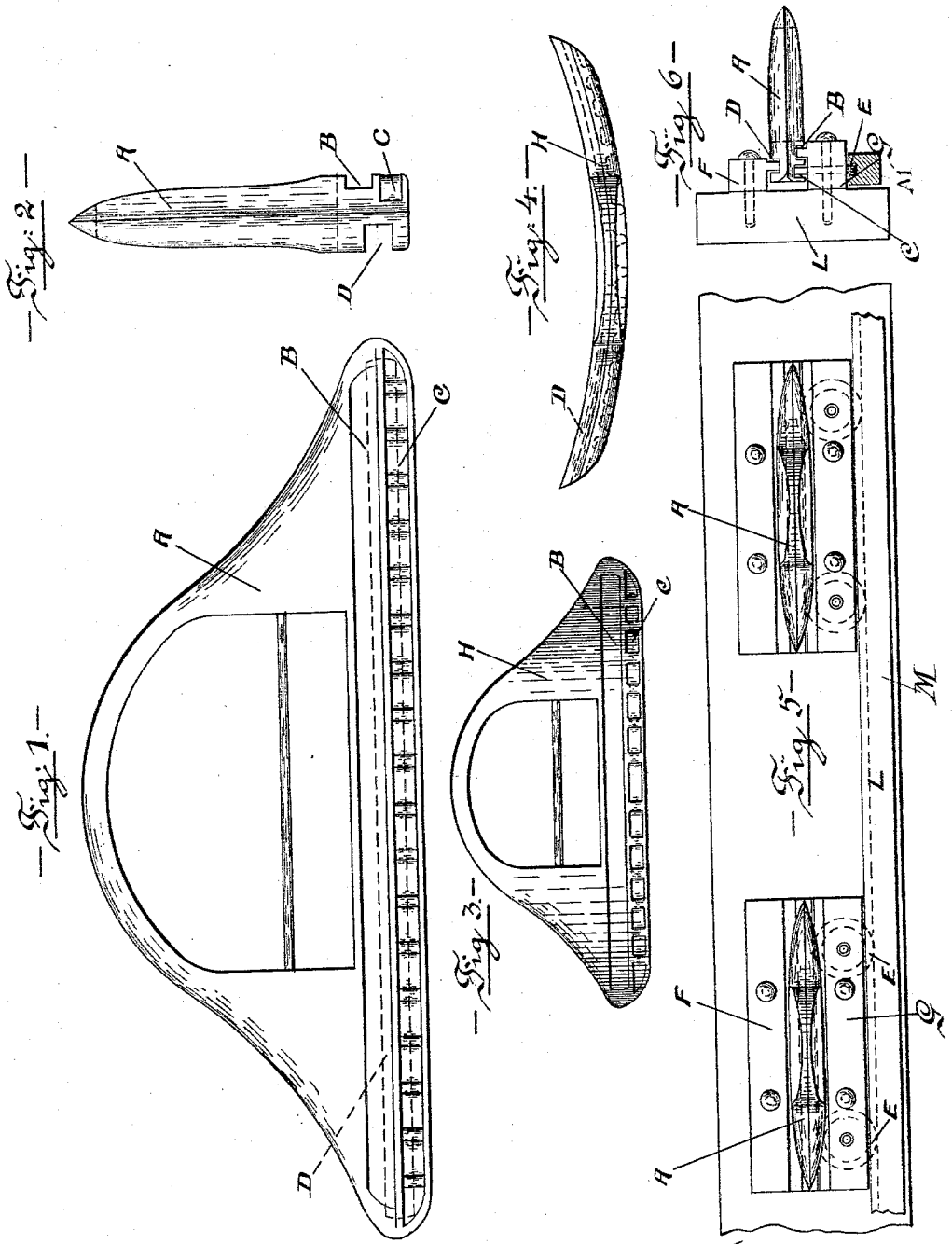
(No Model.)

A. & S. WIDMER.

LOOM SHUTTLE.

No. 562,685. Patented June 23, 1896.



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UNITED STATES PATENT OFFICE.

ADOLPH WIDMER AND SAMUEL WIDMER, OF PATERSON, NEW JERSEY.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 562,685, dated June 23, 1896.

Application filed July 17, 1895. Serial No. 556,218. (No model.)

To all whom it may concern:

Be it known that we, ADOLPH WIDMER and SAMUEL WIDMER, citizens 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 we do hereby 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 letters of reference marked thereon, which form a part of this specification.

Our invention relates to an improvement in the loom-shuttles used in the manufacture of silk ribbons, and the advantages we claim as being derived by our said improvement are the reconstruction of the shuttle and the batten-blocks, whereby the shuttle is furnished with a smooth groove in addition to the one the ordinary shuttle has in silk-ribbon looms, and the batten-blocks with a supplementary guide to steady said groove, as herein illustrated and described. That such additional smooth groove as the one given the narrow-ware, otherwise silk-ribbon, shuttle by us has been used before and appears in such patents as A. Insinger, No. 542,386, and in the reissue of B. Oldfield's patent, Reissue No. 2,379, we are aware of; but in each case the object aimed at and attained has been a different one and neither of the above patentees have either claimed the additional groove in their description or claim nor located it in the shuttle with our object in view or in the manner as illustrated in our drawings, and consequently in thus having called attention to these old styles of shuttle, it will be better understood and appreciated wherein the benefit in our construction lies, as will furthermore be apparent in our description later on. The disadvantages in this (the old) construction are the following: first, that when the groove containing the teeth is worn down to the face of the teeth, the shuttle becomes useless; secondly, as the under (toothed) groove and upper groove are directly opposite to each other, it gives the shuttle very little lateral support or bearing, in fact, just the width of the groove; and thirdly, both ends so taper that the batten-blocks always have to be as close together as possible to insure good bearing, consequently permitting only a certain width of ribbon.

In describing our invention we refer to the accompanying drawings, wherein like letters of reference indicate corresponding parts in the different views, and wherein—

Figure 1 shows a side view of our improved shuttle; Fig. 2, an end view of Fig. 1. Fig. 3 is a side view of the curved shuttle, which is grooved as readily as the straight shuttle. Fig. 4 is a top view of Fig. 3. Fig. 5 shows part of the batten-beam, with two blocks for straight shuttles illustrated, each containing a shuttle; and Fig. 6 is an end view of Fig. 5.

In Fig. 1, A indicates the shuttle itself; B, the smooth under guiding-groove, the term "smooth" to be applied to this groove and to the upper guiding-groove D to distinguish them both from the toothed groove C; C, the groove containing the teeth meshing with pinions E, gearing in rack M, attached to the batten-beam in the customary manner, these two under grooves B and C being the new substitutes for the single groove in the old style used heretofore.

D is the upper groove, (clearly illustrated in the straight shuttle and best seen in the end view of same in Fig. 2,) being placed, as it is, between the two lower grooves B and C, whereas in the curved shuttle H it lies straight behind slot C, and can only be seen as indicated by the dotted line in Fig. 4.

The shuttle, when in its place, is held, as will be best seen in Fig. 6, by the upper and lower batten-blocks F and G, secured to the batten-beam L, and is moved in the customary manner by pinions E, gearing into the toothed groove C, the pinions, receiving motion from rack M. The batten-blocks F and G are both constructed in conformity with the grooves in the shuttle.

It will now be readily seen that any body, in this instance a shuttle, guided by an upper groove and both guided and supported by two lower grooves, will possess an advantage over a shuttle that has only two grooves, an upper and a lower one, in being better balanced, productive of two good effects, that of giving a safer and longer bearing on the same length of shuttle, and causing less wear on both teeth and groove, and consequently

giving additional life to a shuttle having the above-mentioned additional grooves as compared with a shuttle of the old style where the single lower groove had to carry all the wear in itself, and, as pointed out before, became, when worn down to the face of the teeth, useless. It will furthermore be seen that the support furnished by having the two grooves B and C must give a safer catch and a better bearing when the shuttle is thrown from one set of blocks to the other and thus permit the same blocks, maintaining the same distance between them, to be cut off, so that the space between them is increased, thus covering the third defect mentioned in connection with the old style of shuttle, and being able to do this, it will allow a wider ribbon to be introduced in a loom using our improved shuttle.

The advantages here pointed out relating to a more even balancing of the shuttle and consequent less wear applies to the curved shuttle H as well as to the straight shuttle A, as they both are constructed exactly similar with regard to the additional groove, the block having a supplementary guide steady ing the groove. In other words, both have the two under grooves B and C introduced, as illustrated in the drawings.

What we then claim as a new mechanical element, and not hitherto applied in combination with the style of shuttle herein set forth, is—

The combination, in a single-shuttle loom, of the batten-beam, the shuttle having a toothed groove contiguous to the inner edge of the under surface of its body and a smooth groove between said toothed groove and the outer under edge of said body, and also having a smooth groove in its upper surface overlying the space between said grooves in its under surface, a lower block having pinions engaging said toothed groove and the gear-rack, and a guiding-tongue received by said smooth under groove and supporting and guiding the shuttle, and the upper block having a guiding-tongue received by the groove in the upper surface of the shuttle, whereby the durability and utility of the shuttle are increased, as specified.

In testimony that we claim the foregoing we have hereunto set our hands this 10th day of July, 1895.

ADOLPH WIDMER.
SAMUEL WIDMER.

Witnesses:
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