

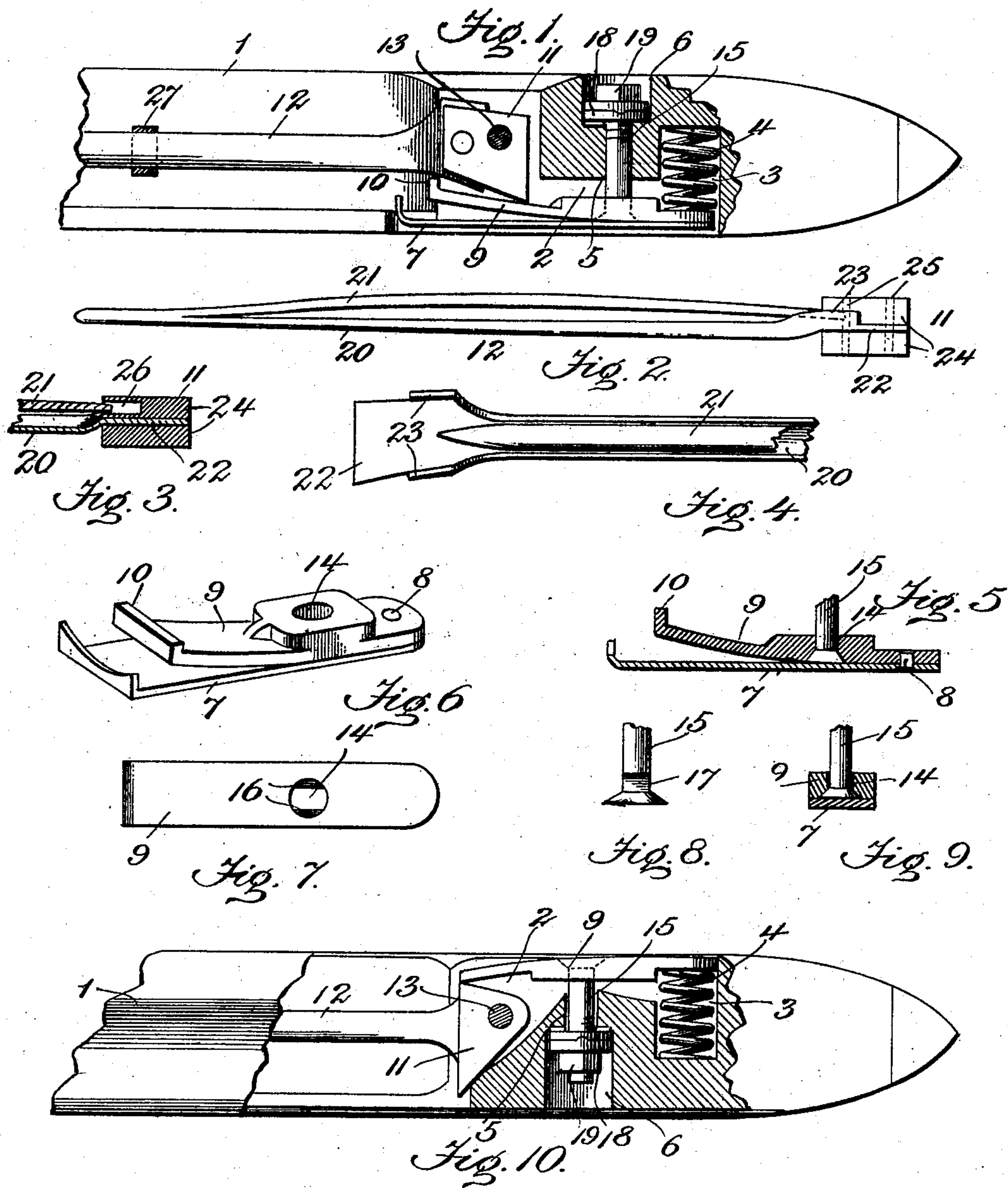
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A. ISHERWOOD.
LOOM SHUTTLE.

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NO MODEL.



Witnesses:

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ALFRED ISHERWOOD, OF NEW BEDFORD, MASSACHUSETTS.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 762,905, dated June 21, 1904.

Application filed April 2, 1903. Serial No. 150,715. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ISHERWOOD, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Loom-Shuttle, of which the following is a specification.

This invention relates to improvements in loom-shuttles.

The principal objects in view are to provide a shuttle wherein the spindle thereof is so constructed as to adapt said spindle for use in connection with either a cop or bobbin filling and when used in connection with the former to retain such cop more securely than heretofore possible and produce a spindle that does not entail the forging of its parts together, thus reducing cost, which will be lighter and stronger, which is of such peculiar shape as to facilitate its manufacture by the ordinary and cheap process of brazing, and, finally, which may be readily repaired when broken.

Other objects and advantages of my invention and the novel features thereof will hereinafter appear, and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a longitudinal sectional view of a loom-shuttle embodying my improvements. Fig. 2 is a detail in elevation of my improved spindle. Fig. 3 is a horizontal longitudinal section through the head and adjacent portion of the spindle. Fig. 4 is a detail in elevation reverse to that shown in Fig. 1 of the head end of the spindle-body. Fig. 5 is a detail in longitudinal section of the combined lever and catch employed in a combination cop and bobbin shuttle. Fig. 6 is a detail in perspective of the same. Fig. 7 is a bottom plan view thereof. Fig. 8 is a detail of the head end of the tension-bolt. Fig. 9 is a transverse section through the combined catch and lever shown in Figs. 1, 5, and 6; and Fig. 10 is a view similar to Fig. 1, the coiled spring and tension being reversed in their positions and employed in connection with a cop-filling shuttle.

Similar numerals indicate similar parts throughout the drawings.

The shuttle-body 1 is provided with the usual recess 2 for the accommodation of the tension-lever and bobbin-catch (see Fig. 1) or the lever only (see Fig. 10) and, as will be obvious, may be upon either the upper or lower sides thereof. In rear of the recess 2 is formed a cylindrical cavity 3, the same communicating at its open end with the recess 2 and adapted to receive and form a seat for a coiled expansion-spring 4. Also communicating, but in line with and at a right angle to the recess 2, is a bolt-hole 5, that extends to the opposite side of the shuttle-body and may terminate in an enlarged opening 6, as is usual.

In Fig. 1 I have illustrated a "combination-shuttle"—that is, a shuttle adapted for either a cop or bobbin fillings, in order to do which I likewise employ the usual bobbin-catch 7. The bobbin-catch 7 is of the usual form, but is preferably pivoted by a rivet 8 at its forward end to the corresponding end of a tension-lever 9. (See Fig. 5.) The tension-lever, together with the bobbin-catch, occupy the recess 2 of the shuttle. The tension-lever is somewhat shorter than the bobbin-catch and at a point in advance of the pivot 8 tends upwardly or away from the catch and terminates thereabove in a stop-flange 10. This lever, of course, lies against the under side of the head 11 of the spindle 12, and the stop-flange 10, as its name implies, serves as a stop for the spindle when raised on its pivot or pintle 13. The lever 9 may be somewhat thickened near its center to lend sufficient stock at this point, and is perforated, as at 14, for the accommodation of the tension-bolt 15 or, it may be, an ordinary screw. This perforation is elongated at its inner side, (see Fig. 6,) and its outer end is flared to receive the flared head of the bolt or screw. These two formations produce at opposite sides of the perforations shoulders 16, (see Fig. 7,) and the bolt being flattened, as at 17, (see Fig. 8,) to prevent rotation the lever, as will be apparent,

is capable of a slight oscillation. By pivoting the catch 7 to the lever the former may be swung to one side, so as to uncover the perforation 14 and permit the insertion of the bolt. When replaced, the catch serves to hold the bolt in place.

Upon the upper end of the bolt 15 is located the recessed washer 18 and locking-nut 19, the two being of the conventional form and not requiring special mention. It will be perfectly obvious that through a proper manipulation of the nut 19 the lever 9 may be placed under greater or less tension of the coiled spring 4, said lever oscillating on the head of the bolt as such tension is changed. It will furthermore be obvious that the expansive tendency of the spring will serve to retain the nut in its locked position with relation to its washer. Thus the coiled spring serves the two important functions pointed out.

In Fig. 10 the shuttle is shown adapted for a cop-filling only, and hence the bobbin-catch omitted. Here also, while the construction is the same, the position of the elements are reversed; but all operate as before described.

Of course any style of spindle-head may be employed, and I have merely illustrated the two of the usual well-known shapes. The spindle-body 12 is formed in two parts, or, in other words, in longitudinal sections 20 and 21. The section 20 is substantially U-shaped in cross-section or made semitubular and is formed of sheet metal of suitable gage. It is tapered from its point to its heel, where it is flattened and flared, forming a plate 22, at the upper and lower sides of which angularly-disposed narrow flanges 23 are produced. This section by reason of its semitubular shape is given considerably more strength and rigidity than heretofore and may be widened and greatly strengthened at its heel. As thus formed the plate 22 is seated or located between two halves 24, which, with the plate 22, combine to make up the spindle-head 11. For the purpose of securing these parts together firmly rivets 25 (see Fig. 2) may be employed. To lend further rigidity to these parts, the flanges 23 may be employed, and when so done they extend over the upper and lower sides of the spindle-head, thus strengthening the spindle where it joins the head. The remaining half or section 21 of the spindle-body is preferably made solid and of a shape in cross-section to adapt it to fit either wholly or partially within the section 20. This section 21 is spring-like or resilient and is tapered at its opposite ends, as well as normally slightly bowed intermediate the same. The section 20 being hollow is capable of receiving and retaining a sufficient quantity of brass to enable a firm reliable brazed joint to be formed,

hence a reduction in the cost over the usual welding process employed. The length of the section 21 is sufficient to cause when said section is compressed its inner end to enter a small cavity 26, formed in the head 11 of the spindle, such end being guided to the cavity by the shape of the section 20. As thus formed the spindle is adapted for the reception of the ordinary cop-filling, upon the cop of which such tension will be exerted as to firmly retain the same.

To adapt the spindle for the usual bobbin-filling, I propose to compress the sections 20 and 21 together, so as to produce practically an ordinary rigid spindle. This compression, and hence nesting of the solid section 21 within the hollow section 20, may be accomplished in any suitable way; but the preferred way is by means of a removable clamping ring or band 27. (See Fig. 1.) This will be found sufficient and, moreover, is readily removed.

Having thus described my invention, what I claim is—

1. A shuttle, having a spindle, the body portion of which is divided longitudinally, which divisions have a normal tendency to spring apart, and a band or ring encircling the same and serving to compress said divisions against such normal tendency.

2. A shuttle, comprising a spindle having a body portion terminating at its heel in a flat flared head, plates at each side of the head and means for securing the same together.

3. A shuttle, comprising a spindle having its body portion formed of two divisions or halves one of which latter formed of sheet metal semitubular in cross-section and at its rear end terminating in a flat securing-plate having opposite flanges along its edges, and blocks clamping said plate and forming a head and embraced by said flanges.

4. A shuttle, comprising a spindle, the body of which terminates in a flat flared plate, and blocks clamped to the opposite sides thereof.

5. A shuttle, comprising a longitudinally-divided spindle-body normally sprung apart between their ends and a head having a cavity, and a band for compressing said divisions together and causing the free end of one of such divisions to enter said cavity.

6. A shuttle-spindle, comprising a subdivided body portion, as 20 and 21, the latter flared as at 22 and provided with the flanges 23, the blocks 24, riveted as at 25 and provided with the cavity 26 adapted to receive the inner free end of the division 21 when said division is compressed, and the ring 27.

7. A shuttle, having a spindle the body portion of which comprises longitudinal divisions having a normal tendency to separate or spring apart, whereby said spindle is adapted to re-

ceive a cop-filling, combined with a band or
ring of less internal diameter than the spindle
when the divisions thereof are free, and there-
fore serving to compress the same together,
5 and adapt the spindle to receive a bobbin-
filling, said ring also adapted to serve as a bear-
ing for the latter.

In testimony whereof I have signed my name
to this specification in the presence of two sub-
scribing witnesses.

ALFRED ISHERWOOD.

Witnesses:

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THOMAS ISHERWOOD.