

UNITED STATES PATENT OFFICE.

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SHUTTLE.

1,044,372.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH GAGNON, a subject of the King of England, and a resident of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Shuttles, of which the following is a specification.

My invention is an improvement in shuttles, and has for its object the provision of a strong, simple, cheaply constructed shuttle without lateral openings or cuts, and wherein means is provided for permitting the shuttle to be quickly and expeditiously threaded, and for preventing accidental unthreading.

In the drawings Figure 1 is a plan view of the improvement. Figs. 2, 3 and 4 are enlarged sections on the lines 2—2, 3—3, and 4—4, respectively, of Fig. 1. Fig. 5 is a section on the line 5—5 of Fig. 3, Fig. 6 is a perspective view of the eye, and Fig. 7 is a perspective view of a modified form of eye.

The present embodiment of the invention comprises a shuttle body 1 of suitable size and material of approximately boat shape, and having the pointed ends 2 and 3. The body is recessed longitudinally in its upper face, as indicated at 4, and the bobbin 5 is held in the recess, on a spindle 6. The thread 7 passes forwardly from the bobbin to the adjacent end of recess 4, and enters a slot 8 arranged vertically in the upper face of the body. The eye 9 for the thread (Fig. 6) is arranged transversely of the slot 8 in a transverse opening in the body, and the thread passes into the eye in a manner to be described. The eye, as shown in Fig. 6, is a shell having a longitudinal slot 10 and a transverse slot 11 intersecting the longitudinal slot at one end of the transverse slot at the center of the said longitudinal slot. The transverse slot 11 registers with the slot 8 of the body of the shuttle, and the thread enters the eye through slot 11. At its outer end, slot 8 of the body of the shuttle communicates with the inclined portion 12 of a slot consisting of a portion 13 parallel with slot 8, and the inclined portion 12. At the junction of slots 8 and 12, the body is cut away to form a recess 14, and the portion 13 of slot 12—13 extends inwardly beyond the eye, stopping short however of the recess 4. The bottom wall 15 of slot 8 is curved or inclined (Fig. 2), being flush with the lower edge of slot 10 at the

outer side of the eye and with the end of slot 11 remote from slot 10 on the inner side of the eye. Slot 12—13 (Fig. 3) is of equal depth with slot 8, the bottom wall 16 being in the same plane with the bottom wall 15 of slot 8, and a transverse passage 17 connects the slots, the bottom of the passage being on the same level with the walls 15 and 16.

The shuttle body is provided with the threading recess or chamber 18 at the junction of slot 8 with recess 4, the side walls of slot 8 being undercut to form the recess.

It will be noted from an inspection of Figs. 4 and 5 that the slot 12—13 is inclined inwardly toward the upper face of the shuttle, so that while the upper edge, or opening of the slot on the upper face of the shuttle body, is some distance from the side of the body, the lower edge of the slot cuts the said side at the end of the eye, as indicated at 19 in Fig. 4. The intersection 19 of portion 12 of slot 12—13 is at the end of slot 10 of the eye, so that the shuttle may be easily threaded merely by engaging a bight of the thread with the beak or horn 20, formed by the intersection or junction of slot 8 and portion 12 of slot 12—13, and drawing the thread inwardly toward the bobbin.

When threading the shuttle, a portion of the thread is drawn from the bobbin, and a bight is formed in the said thread and engaged over the beak or horn 20. The ends of the bight are then drawn inwardly toward the recess 4, and the thread slips along in the inclined passage 17 until it enters the eye through slot 10. The thread when so engaged must be moved in precisely the reverse direction to become disengaged, and there is no possibility of such movement on the part of that end of the bight of thread connected to the bobbin. It will be noted that in addition to being hand threading, the shuttle has no lateral openings except the ends of the eye, and for this reason is much stronger than the usual form of shuttle.

The bobbin is held on the usual pin hinged as shown to the shuttle at the end remote from the beak or horn 20 and capable of swinging into and out of the recess 4, the said pin being held in or out of the recess by a spring as shown. The pointed ends 2 and 3 are also provided with metallic shields or hoods as shown to prevent wear on the shuttle. Preferably the eye is provided at one

end with a threaded portion for engaging the transverse opening in the body, and the said end may also be provided with a transverse kerf or slot for engagement by a tool to turn the eye into place. This construction is shown in Fig. 7, and in the said eye the slots are somewhat differently arranged. As shown, the opposite end of the eye 21 from that provided with the threaded portion 22 and the kerf 23, is provided with a longitudinally extending slot 24, communicating at its inner end with a transverse slot 25, and at its outer end with an inclined or spiral slot 26. The slot 26 extends from the outer end of the slot 24 to the end of the eye. The threaded portion of the eye is solid. The particular arrangement of slot in the said eye is to facilitate the entrance of the thread.

I claim:—

1. A shuttle comprising a body having a longitudinal recess in its upper face for the bobbin, and having a threading chamber at one end of the recess, and having a lateral transverse opening on the opposite side of the chamber from the recess, an eye in the opening comprising a shell having a longitudinal slot in the opposite side from the chamber, and a transverse slot in its upper side intersecting the longitudinal slot at its center at the outer end of the recess, the body having a vertical slot leading from the chamber toward the adjacent end of the body and registering with the transverse slot of the eye, the body having a lateral slot at one side of the vertical slot, the outer end of the lateral slot inclining inwardly and intersecting the vertical slot at its outer end, the body having a transverse passage connecting the slots at their bottoms, said pas-

sage registering with the longitudinal slot of the eye, the plane of the lateral slot being inclined at its top toward the vertical slot and cutting the side of the body at the end of the longitudinal slot of the eye.

2. A shuttle comprising a body having a bobbin recess and a threading chamber at the front of the recess, and having a transverse opening in front of the chamber, an eye in the opening, said eye comprising a shell having a longitudinal slot in its front side and a transverse slot intersecting the longitudinal slot at approximately its center and at the front end of the transverse slot, the body having a transverse passage in register with the longitudinal slot of the eye and opening at the side of the body at the end of the longitudinal slot, said passage leading forwardly and upwardly and gradually decreasing in width toward its forward end, the body having a vertical slot at the inner side of the passage and communicating therewith and an inclined slot at the outer side and communicating with the passage, said slots converging at the forward end of the passage.

3. In a shuttle, the combination of a shuttle body provided with a bobbin cavity, and the transverse passage at one end of the cavity, an approximately cylindrical eye in the passage, said eye having intersecting longitudinal and transverse thread slots, and the shuttle body having an integral threading tongue for guiding the thread into the thread slots of the eye.

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