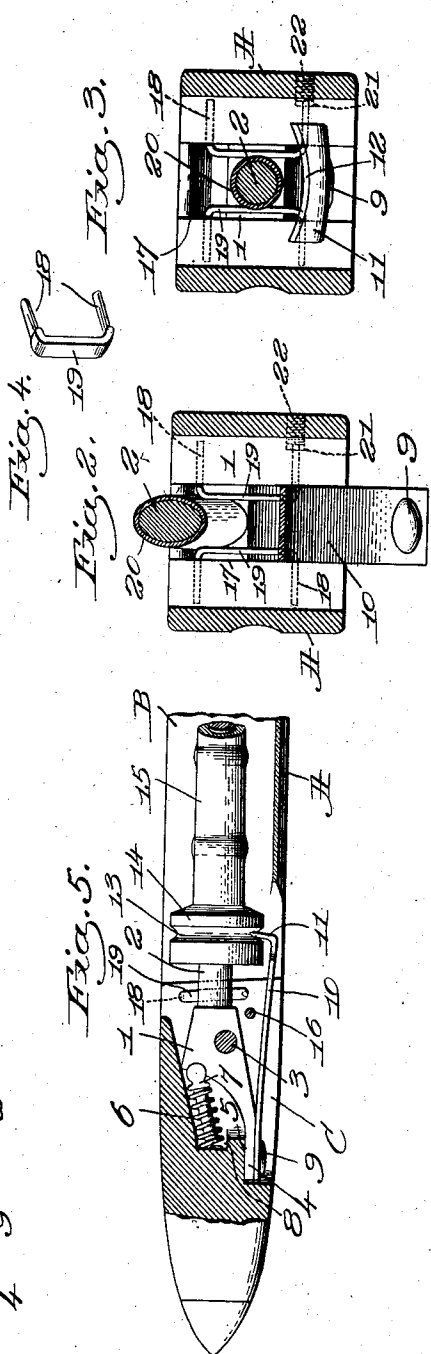
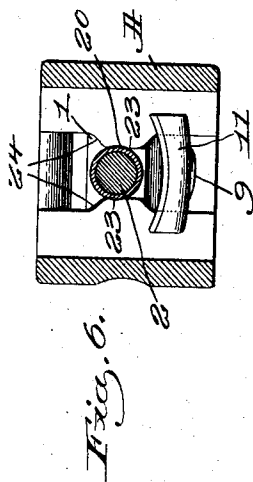
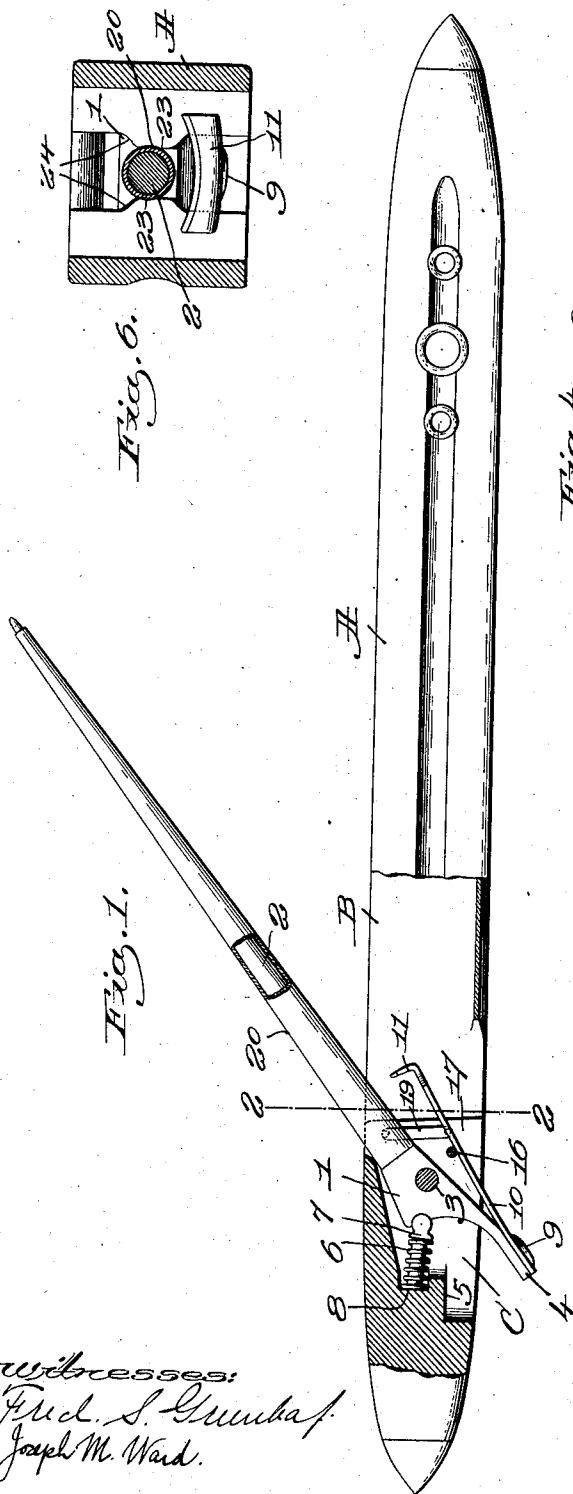


G. J. DUSTIN.
 LOOM SHUTTLE.
 APPLICATION FILED DEC. 22, 1910.

1,027,703.

Patented May 28, 1912.



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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

1,027,703.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed December 22, 1910. Serial No. 598,847.

To all whom it may concern:

Be it known that I, GORDON J. DUSTIN, a citizen of the United States, and resident of Fulton, county of Oswego, State of New York, have invented an Improvement in Loom-Shuttles, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

10 This invention has for its object the production of a loom-shuttle equipped with novel and efficient means whereby the shuttle may be used with bobbins or with cop-tubes, the shuttle being of the well-known type wherein a spindle is pivotally sustained in the shuttle-body, to be swung into or out of operative position.

Many mills use both bobbins and cop-tubes as yarn carriers, and it is desirable that the shuttles be so constructed as to enable either form of yarn carrier to be used therewith as may be desired or convenient. To attain the desired result the shuttle must be equipped with suitable holding devices to coöperate respectively with a bobbin or a cop-tube and retain the same from endwise movement on the spindle when the latter is operatively positioned while releasing either form of yarn carrier when the spindle is swung out of operative position.

The novel features of my invention whereby the desired results are secured will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation and part longitudinal section of a loom shuttle embodying my present invention, the spindle being shown as swung out of operative position and having a cop-tube thereon; Fig. 2 is a transverse section thereof on the line 2-2, Fig. 1, looking toward the left; Fig. 3 is a similar view but with the spindle in operative position, showing the cop-tube locked or clamped upon the spindle and also showing the bobbin catch; Fig. 4 is a perspective view, detached, of one form of locking or clamping abutment for the cop-tube; Fig. 5 is a view similar to Fig. 1 but showing the spindle swung into the shuttle in operative position, with a bobbin thereon, and illustrating the means for locking the bobbin from endwise movement; Fig. 6 is a sectional view similar to Fig. 3 of another form of locking or clamping abutment for the cop-tube.

The shuttle body A having the usual elongated opening B for the spindle and yarn receiver is cut out or socketed at one end and at its bottom to accommodate the head 1 of the tapered spindle 2 rigidly attached to or forming a part of the head, the latter being mounted to swing on a transverse pivot-pin 3 fixed in the shuttle-wood.

The extension 4 of the head is adapted to bear against a stop 5 in the socketed part C of the shuttle when the spindle is swung into operative position, Fig. 5, substantially in alinement with the longitudinal axis of the shuttle.

A spring 6 acts upon the head to hold the spindle in either its operative or its inoperative position, as shown, the spring surrounding a guide 7 pivotally connected with the spindle head, the opposite ends of the spring engaging a shoulder on the guide and the bottom of the seat 8, respectively, no claim being made to this particular structure.

Upon the extension 4 I rivet at 9 a resilient arm 10 extended inward beneath the head 1 and beyond the same into the opening B of the shuttle, the free end of said arm being laterally extended and upturned at 11 to form a bobbin catch, the upper edge thereof being preferably concaved at 12, Fig. 3, to enter the crease 13 in the annular head 14 of a bobbin 15, Fig. 5, when the spindle is swung into operative position.

When the spindle is swung out of the shuttle the arm is engaged by a stop pin 16 and the bobbin holder or catch 11 is retracted from the spindle to release the bobbin, the retracted position of the catch being shown in Fig. 1, and when the parts are so positioned a bobbin can be readily applied to or withdrawn from the spindle, as will be obvious.

The shuttle wood at the inner end of the socket C is provided with an upright recess 17 in which the spindle moves when swung on the pivot-pin 3, and upon the opposite walls of this recess I provide opposed locking or clamping abutments presenting cam faces or surfaces to engage and clamp the base of a cop-tube upon the spindle 1 when the latter is in operative position.

In Figs. 1, 2, 3 and 5 the abutment is formed by a staple-like member made of metal and comprising legs 18 connected by a flattened and elongated head 19, as clearly shown in Fig. 4, the legs being driven into

the shuttle wood forming the side wall of the recess 17, as shown, so that the upright heads 19 present opposed abutments, at opposite sides of the spindle path.

5 I prefer to slightly incline the abutments so that the opposite faces of the heads converge toward the bottom of the shuttle, thereby presenting cam surfaces, and when a cop-tube, as 20, is slipped onto the spindle, 10 Fig. 1, with its base against the spindle-head 2, the cam surfaces will engage and gradually compress the base of the cop-tube against the spindle as the latter is swung into operative position, as shown in Fig. 3. 15 By this means the base of the cop-tube is locked or clamped so firmly upon the spindle that no movement of the cop-tube relatively to the spindle can occur when the spindle is operatively positioned.

20 When the spindle is swung up out of operative position, Figs. 1 and 2, the base of the cop-tube is withdrawn from engagement with the abutments and is thereby released, so that it can be easily pulled off the spindle.

25 If desired I can adjust the effective distance between the abutment faces, and this is effected herein by loosely inserting the lower leg of one of the abutments in a hole in the wall of the recess 17 and counterboring the 30 outer end of the hole at 21, Figs. 2 and 3, to receive a threaded adjusting screw 22 having its outer end nicked or otherwise shaped for engagement by a suitable tool.

By turning the screw inward the lower 35 leg of the abutment will be pushed inward so that the engaging face of the abutment or head 19 will be moved closer to the opposite abutment. This adjustment is convenient when very thin cop-tubes are used.

40 In the modification shown in Fig. 6 the cam faced abutments 23 are formed integral with the shuttle wood constituting the side walls of the upright recess 17, the opposed faces of the enlargements or abutments 23 45 engaging and clamping the base of the cop-tube onto the spindle. As shown the upper surfaces of the abutments are inclined toward each other, at 24, to facilitate the passage of the base of the cop-tube into clamped 50 position between the abutments.

Manifestly the locking or clamping of the base of the cop-tube from movement upon the spindle is accomplished in the same manner whether the engaging surfaces are 55 formed on abutments integral with the shuttle body or attached thereto, and in either case a positive and firm pinching or clamping action is secured simply by movement of the spindle into operative position.

60 Changes or modifications in different particulars may be made by those skilled in the art without departing from the spirit and

scope of my invention as set forth in the appended claims.

Having fully described my invention, 65 what I claim as new and desire to secure by Letters Patent is:

1. In a shuttle, a spindle pivotally mounted therein to swing into and out of operative position, and opposed substantially 70 rigid cop locking abutments on and projecting inward from the sides of the shuttle body and presenting flat and upright, relatively fixed faces between which the spindle 75 swings, to engage opposite sides of and lock the base of a cop tube upon the spindle when the same is swung into operative position between said relatively fixed cop engaging faces.

2. In a shuttle, a spindle pivotally mounted therein to swing into and out of operative position, opposite staple-like abutments connected at their lower and upper ends with the shuttle body having upright and substantially rigid portions between which the 85 spindle swings, to engage opposite sides of the base in the cop tube and clamp the same upon the spindle when the said spindle is swung between such upright portions into operative position. 90

3. In a shuttle, a spindle pivoted therein to swing into and out of operative position, opposite rigid abutments between which the spindle extends when operatively positioned, said abutments having opposed faces 95 which at such time engage the base of a cop-tube on opposite sides of the spindle and clamp the cop-tube upon the spindle, and threaded means mounted in the shuttle body and engaging a part of one of said abutments, to move the latter toward the other 100 abutment and thereby regulate and maintain adjusted the effective distance between the engaging faces of said abutments.

4. In a shuttle, a spindle pivoted therein 105 to swing into and out of operative position, the shuttle body having an upright recess between the opposite walls of which the spindle swings, and metallic, flat-faced, staple-like abutments mounted on the walls 110 of the recess and extended toward each other at opposite sides of the spindle path, the flat faces of said abutments engaging at opposite sides the base of a cop-tube when the spindle is operatively positioned to compress and thereby clamp the tube upon the 115 spindle.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

GORDON J. DUSTIN.

Witnesses:

J. F. DUSTIN,

J. R. SULLIVAN.