

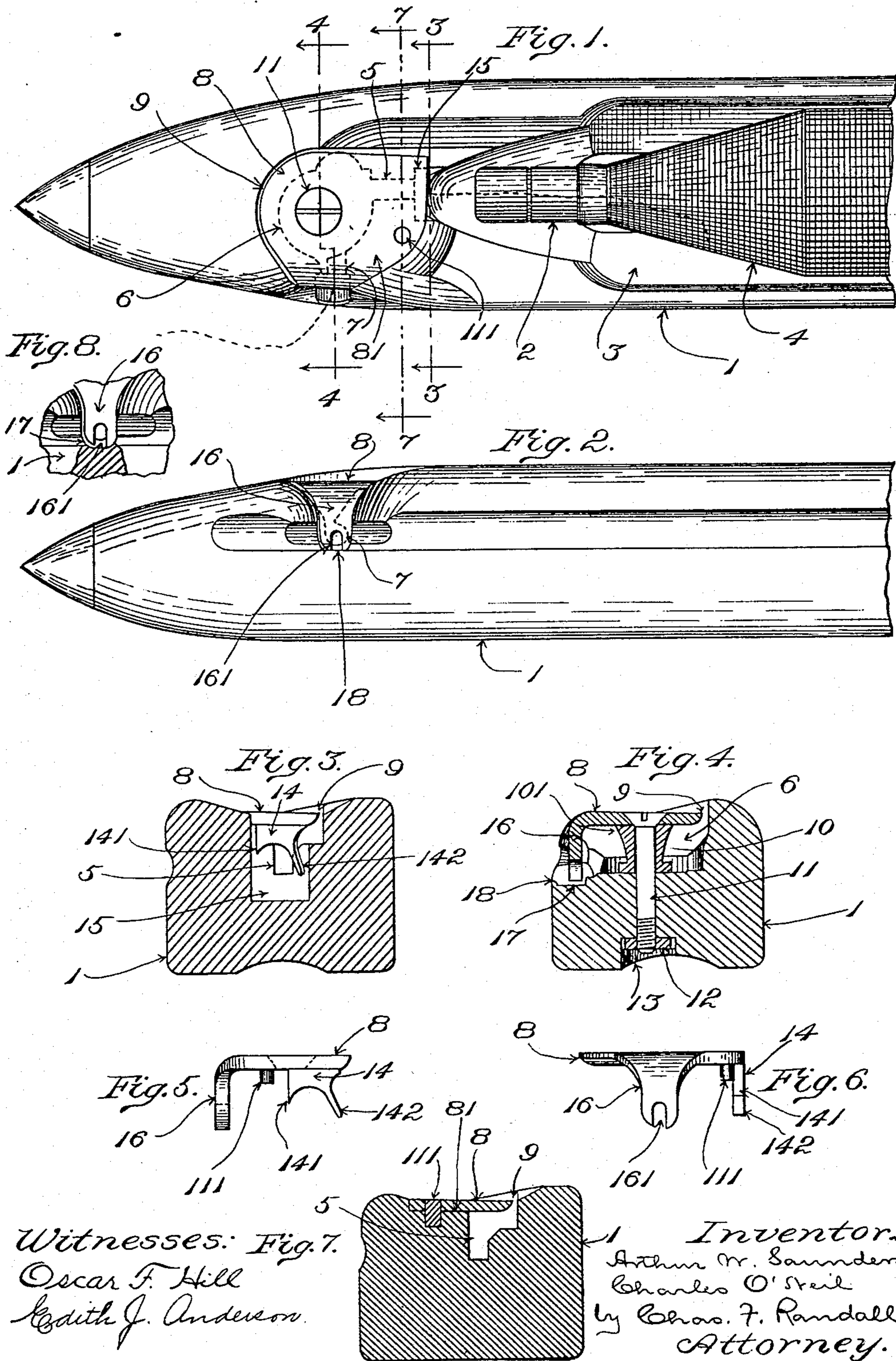
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LOOM SHUTTLE.

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Witnesses: Fig. 7.
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UNITED STATES PATENT OFFICE.

ARTHUR W. SAUNDERS AND CHARLES O'NEIL, OF LOWELL, MASSACHUSETTS.

LOOM-SHUTTLE.

No. 835,230.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ARTHUR W. SAUNDERS and CHARLES O'NEIL, citizens of the United States, residing at Lowell, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Loom-Shuttles, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has relation to the threading devices of hand-threading or self-threading loom-shuttles.

One of the objects of the invention is to provide a threading device of improved construction which will prevent the weft-yarn or filling from being thrown or drawn up through the inner end of the threading-slit in consequence of ballooning or forming into a loop between the filling-carrier and the threading device and which will also prevent the weft-yarn or filling from rising out of the yarn-delivery passage or educt into the outer end of the said threading-slit.

Another object of the invention is to facilitate the construction of hand-threading or self-threading shuttles so that they may be made more readily and economically.

The novel features of my invention are hereinafter described and are particularly pointed out in the claims at the close of the specification.

In the drawings, Figure 1 shows in plan a portion of the length of a loom-shuttle with an embodiment of the invention applied thereto. Fig. 2 shows the said portion in side elevation. Fig. 3 is a view in transverse section on line 3 3, Fig. 1. Fig. 4 is a view in transverse section on line 4 4, Fig. 1. Fig. 5 shows the cover-plate in elevation detached looking at the inner end thereof—i. e. the end which in use is located next adjacent the yarn-chamber of a loom-shuttle. Fig. 6 is an elevation of the said cover-plate looking at the outer end thereof. Fig. 7 is a view in section on line 7 7 of Fig. 1. Fig. 8 is a detail view, portion of the shuttle-body being broken away.

Having reference to the drawings, the body of the loom-shuttle is designated 1.

At 2, Fig. 1, is a bobbin which is contained in the yarn-cavity 3 of the shuttle, 4 being a load of weft-yarn or filling wound upon the said bobbin.

At 5, Fig. 3 and dotted lines, Fig. 1, is an

open-topped throat or passage in the shuttle-body leading forward from the forward end of the yarn-cavity, and at 6, Fig. 4 and dotted lines, Fig. 1, is a threading-chamber with which said throat or passage communicates. 7 (see dotted lines, Figs. 1 and 2) is a yarn-delivery passage which leads transversely from the said threading-chamber to the front side of the shuttle-body.

8 is a cover-plate or horn which extends over the throat or passage 5 and threading-chamber 6, and 9 is a threading-slit which extends around one side and the forward end of the said cover-plate or horn, between the edge of the latter and the adjoining wall of the depression, in the upper portion of the shuttle-body, within which the cover-plate or horn is contained. In threading the shuttle the weft-yarn or filling from the filling-carrier or bobbin 2 within the yarn-cavity is led into the said slit and around the said side and end of the cover-plate or horn, thereby guiding it into the throat or passage 5 and the threading-chamber 6 and down into the delivery-passage 7.

At 10, Fig. 4, is a guide-post which is located within the threading-chamber 6 and around which the yarn changes its direction in passing through the said chamber to and through the delivery-passage 7. The lower end of the said guide-post rests upon the bottom of the threading-chamber, as shown in Fig. 4. The flat body portion of the cover-plate or horn 8 near its center rests upon the upper end of the guide-post and is thereby supported. One side portion of the cover-plate or horn rests upon a horizontal shoulder 81, Figs. 1 and 7, of the shuttle-body.

11, Fig. 4, is a small bolt which passes through holes in the cover-plate, the post, and the portion of the wood of the shuttle-body which is located below the threading-chamber, and 12 is a nut, which is seated within a recess 13 in the under side of the shuttle-body and into which the threaded stem of the said bolt screws. The bolt secures the cover-plate and post in their working positions.

A guide-pin or steady-pin 111, Figs. 1 and 7, projecting down from the cover-plate or horn, enters a hole in the shoulder 81 and assures the correct position of the cover-plate or horn.

For the purpose of preventing the weft-

yarn or filling after having been introduced into the throat or passage 5 from escaping therefrom the inner end of the cover-plate or horn is provided or formed with a downwardly-extending projection or lug 14, Figs. 3, 5, and 6, which crosses or bridges the throat or passage 5 below the top of the latter, as represented in Fig. 3, so as to hold the weft-yarn or filling down within such throat or passage. The under edge of this bridging projection or lug is concaved to correspond substantially with the path of movement of the weft-yarn or filling as it circles around the tip of the yarn-carrier in drawing off from the latter. This projection or lug occupies a transverse recess 15 in the shuttle-body at the inner end of the throat or passage 5 adjacent the yarn-cavity 3, as shown in Figs. 1 and 3, the said recess being wider and also deeper vertically than the throat or passage, so that its side portions extend laterally beyond the side walls of the said throat or passage and also so that its bottom is at a lower level than that of the throat or passage, as in the said figures. The projection or lug 14 is furnished with spurs 141 142, Figs. 3 and 5, diverging from each other and extending transversely in opposite directions beyond the side walls of the throat or passage 5, so that the free extremities thereby are shielded in a manner to prevent the weft-yarn or filling from readily passing up at the outside of the said spurs. The spur 142, located at the same side of the throat or passage 5 on which the threading-slit 9 is located, is, in addition, of considerable length and projects below the bottom of the throat or passage, as shown in Fig. 3, to thereby guard the more effectually against the weft-yarn or filling being thrown or drawn around the free end of such spur and out through the threading-slit 9. In the operation of threading the shuttle as the weft-yarn or filling is drawn along the threading-slit 9 and down within the throat or passage 5 it passes down at the outer side of the long spur 142 and around under the lower or free end of such spur, thus finding its way into the said throat or passage at the inner end of the latter. The said free end is so shielded by the shoulder alongside which it extends at the inner end of the throat or passage that it is practically impossible for the weft-yarn or filling to escape from the throat or passage.

The outer end of the cover-plate or horn is formed or provided with a downwardly-extending lug 16. The said lug occupies a vertical recess in the exterior portion of the shuttle-body, as indicated in Figs. 2 and 4. The lower portion thereof extends in front of the outer end of the transverse passage 7, as indicated in Figs. 1 and 2, and its free end enters a depression 17, Figs. 4 and 8, in the shuttle-body adjacent the said outer end of

the delivery-passage. The said end of lug 16 is formed with a vertical slot 161, Figs. 2, 6, and 8, that is open at the lower end thereof, as shown in Figs. 6 and 8, for the entrance of the weft-yarn or filling. In the operation of threading the shuttle the weft-yarn or filling in being drawn around within the threading-slit 9 is carried down at the forward side of the lug 16 and beneath the forward portion of the said lug into the slot 161. Both portions of the free end of the lug project slightly below the bottom of the passage 7 and also below the upper edge of a raised portion or lip 18 on the shuttle-body at the outer side of the depression 17. The weft-yarn or filling is prevented by the said bottom and raised portion or lip from working out of the slot underneath the forward portion of the lug into the threading-slit. The closed upper end of the slot holds the weft-yarn or filling down within the delivery-passage 7. The side portions of the lug adjoining the slot 161 withstand the wear from the moving weft-yarn or filling as it delivers from the shuttle and take the place of the pins, which in some instances are driven into the wood of the shuttle-body at opposite sides of the delivery-eye, the said pins being rendered unnecessary. The free end of the portion of the lug at the rear of slot 161 contacts closely with the material of the shuttle-body, so as to prevent the weft-yarn from passing in between such free end and the adjoining portion of the shuttle-body. To provide conveniently for the said close contact, the said rear portion of the lug may be made a little longer than the forward portion, as in Fig. 6. This difference in length enables the rear portion to press firmly against the material of the shuttle-body, while providing for easy passage of the weft-yarn or filling into the slot 161.

What is claimed as the invention is—

1. The combination with the shuttle-body formed with the yarn-cavity and the throat, and also having the transversely-extending recess formed in the material thereof at the inner end of the said throat adjacent the yarn-cavity, of the cover-plate having the downwardly-extending lug entering the said recess, extending across the said end of the throat so as to bridge the same, and provided with the detent-spur 142 overlapping a side wall of the throat and shielded within the said recess in the shuttle-body.

2. The combination with the shuttle-body having the transverse open yarn-delivery passage, of the cover-plate or horn having the downwardly-extending lug at the exterior of the shuttle-body and at the outer end of the said delivery-passage, said lug formed with the open-ended upwardly-extending slot to contain the weft-yarn or filling, and with the side portions to withstand the wear

of the weft-yarn or filling, and operating to prevent the weft-yarn or filling from rising within the said delivery-passage.

3. The combination with the shuttle-body
5 formed with the throat, having the transversely-extending recess formed in the material thereof at the inner end of the said throat adjacent the yarn-cavity, and having the open transverse yarn-delivery passage, of the
10 cover-plate having the downwardly-extending lug entering the said recess, extending across the said end of the throat so as to bridge the latter, and provided with the detent-spur 142 overlapping a side wall of the
15 throat and shielded within the said recess in the shuttle-body, the said cover-plate also having the downwardly-extending lug at the exterior of the shuttle-body and at the outer end of the said delivery-passage, said lug
20 formed with the open-ended upwardly-extending slot to contain the weft-yarn or filling, and with the side portions to withstand

the wear of the weft-yarn or filling, and operating to prevent the latter from rising within the said delivery-passage. 25

4. The combination with the shuttle-body having the transverse open yarn-delivery passage, and with the depression adjacent the outer end of such passage, of the cover-plate or horn having the downwardly-extending lug at the outer end of the said delivery-passage, formed with the open-ended upwardly-extending slot to contain the weft-yarn or filling, and having the entrance to the said slot shielded within the said depression. 30 35

In testimony whereof we affix our signatures in presence of two witnesses.

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CHARLES O'NEIL.

Witnesses:

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BLANCHE M. HUTCHINS.